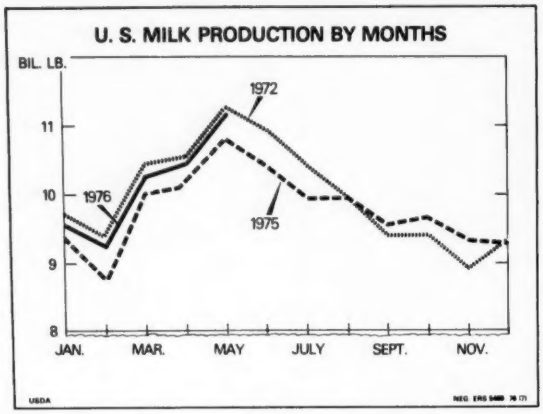
DS-361 JULY 1976

DAIRY Situation

ECONOMIC RESEARCH SERVICE U.S. DEPARTMENT OF AGRICULTURE

CURRENT SITUATION CHARTS



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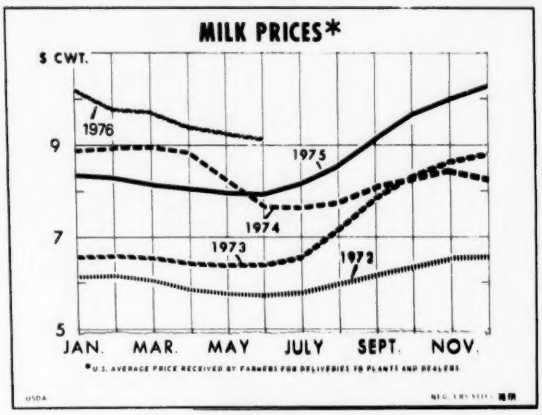

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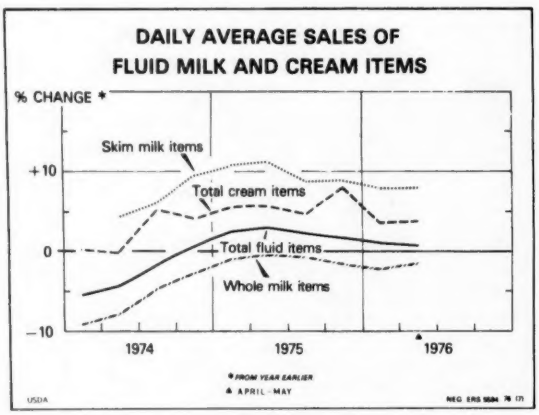

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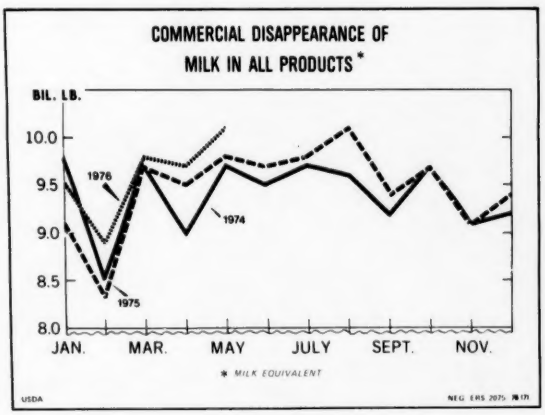

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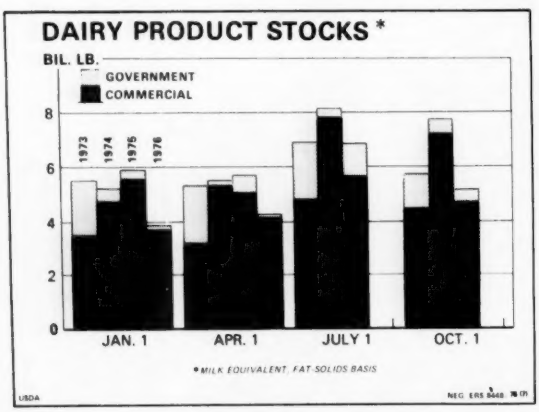

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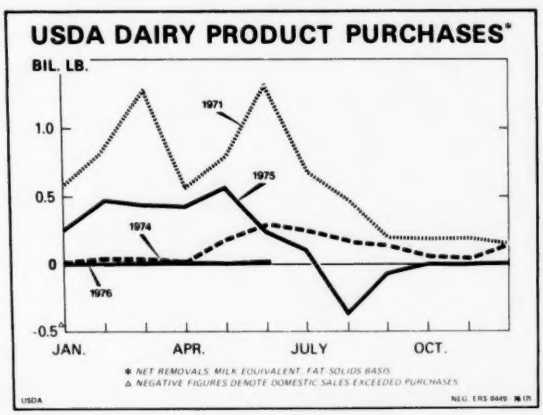

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SUMMARY

Expanding demand kept dairy markets tight this spring, despite substantial increases in milk production. Wholesale butter and cheese prices strengthened as milk production began to crest seasonally. By early July, wholesale butter prices were up 11 cents per pound from early May and American cheese prices were up about 2 cents. The relatively tight supply-demand situation suggests fairly substantial June-December seasonal price rises. But the higher milk production probably will forestall a repeat of last year's very sharp price advances.

Rising butter and cheese prices portend strong early-seasonal rises in farm milk prices. Milk prices during this year's flush season averaged about 15 percent above a year ago. Manufacturing grade milk prices in June were well above both the $8.13 support level and June 1975 prices.

Cash receipts from dairying in the second quarter were up almost a fifth, primarily reflecting much higher milk prices. For all of 1976, cash receipts could reach $11 billion, up from $9.9 billion last year.

Milk output surged this spring, with April-May production up more than 3 percent from a year earlier, as all regions produced more milk. This year's declines in milk cow numbers have averaged close to 1 percent, slightly faster than 1975 but still slow compared with earlier years. Although cull cow prices have been above a year earlier, higher milk prices and large numbers of replacement heifers have helped to maintain milk cow numbers.

The *Dairy Situation* is published in March, May, July, September, and December

Milk production per cow was up more than 4 percent in May, the strongest year-to-year rise since September 1969. Favorable milk-feed price relationships have led to heavier feeding of concentrates and resultant boosts in milk output per cow.

Gains in milk production resulted in substantially more milk available for manufacturing than a year ago during April-May. This increase went into products other than butter. Total cheese output continued to boom and was up almost a fifth to record levels. Butter and nonfat dry milk production was well below last year in April-May as butter-powder operations were at a disadvantage in competing for milk supplies.

Despite higher retail dairy prices, sales of milk in all dairy products this spring were 2½ percent larger than last year. Cheese sales, bolstered by improving consumer incomes, were very strong but slight gains in fluid sales and respectable butter sales were also important. Dairy sales may remain brisk during the rest of 1976.

In May, prices of milk and dairy products at retail were down just slightly from early 1976 levels but were 9 percent above a year ago. Retail prices will rise seasonally in coming months and are expected to average 7-9 percent higher than a year ago for all of 1976.

Commercial dairy stocks rose to 5.7 billion pounds milk equivalent on June 1, up somewhat from 1975 but well below 1974. Stocks of American cheese in commercial hands remained below a year ago and were fairly tight in light of expected strong sales. Although commercial holdings of butter were well above 1975, they were also somewhat tight since production has been running below last year and USDA has no butter available to sell back to the domestic industry.

Most major dairy areas of the world experienced expanded milk output this spring. Stocks of butter, cheese, and especially nonfat dry milk were high. U.S. dairy imports, however, have been small due to the import quota system and the elimination or substantial reduction of subsidies paid by certain European Nations on cheese shipped to this country.

DAIRY SITUATION

SITUATION AND OUTLOOK

PRODUCTION

Milk Production Surges

Milk production in May was 3.4 percent above a year ago, about the same gain as in April and the eighth straight month of increases from a year earlier. Strong increases in milk output per cow were only partially offset by the relatively slow declines in milk cow numbers. Milk production during the first 5 months of 1976 totaled 50.7 billion pounds, the largest production since 1972 and up 3 percent from 1975, but only up about 2½ percent on a daily average basis.

Milk production per cow in May exceeded the 1,000-pound level for the first time ever and, at 1,011 pounds, was 43 pounds above last May. The nearly 4½ percent increase was the sharpest year-to-year increase since September 1969. The gains continue to be fueled by more attractive milk-feed price relationships this year which have led to continued heavier grain feeding.

The number of milk cows on farms started to drop once again in May, after holding the same in February-April, and was about 1 percent below year-earlier levels. Milk cow numbers dropped only 18,000 head from January to May, compared with declines of 27,000 in the same months of 1975 and 50,000 two years ago. Slaughter cow prices held at about the $30 level throughout most of May before declining somewhat during late May and into June. Although these prices have been above a year earlier, higher milk prices and large numbers of replacements heifers have helped to maintain milk cow numbers.

Utility cow prices, Omaha

Month	1974	1975	1976
	Dollars per cwt.	*Dollars per cwt.*	*Dollars per cwt.*
January	31.45	16.82	23.26
February	32.65	18.18	25.90
March	31.76	19.45	27.45
April	30.49	21.67	30.72
May	27.67	23.55	30.24
June	26.39	23.32	27.47
July	24.22	22.00	
August	24.54	21.29	
September	22.56	22.45	
October	19.68	22.01	
November	17.62	20.73	
December	17.67	21.64	
Average	25.56	21.09	

The May gains in milk production were quite widespread as all production regions reported increases, ranging from slight rises in the Plains and Corn Belt to 5½ and 6 percent in the Lake States and Pacific regions, respectively.

In the five major dairy States, which collectively accounted for almost 50 percent of total U.S. production, May milk production was almost 5 percent above last May—led by California's 8 percent gain and Wisconsin's 6 percent increase. Only 8 of the 34 States which report monthly showed production lower than a year ago.

Outlook for the Rest of 1976

A number of factors suggest a favorable outlook for dairy for the rest of 1976:

(1) The continued tight supply-demand balance is likely to result in fairly strong seasonal rises in farm prices during the second half of the year.

(2) Although feed prices have increased from mid-spring levels, they are not likely to maintain the recent levels if normal weather prevails.

(3) Milk-feed price relationships this summer and fall likely will favor continued heavy concentrate feeding even if feed prices are somewhat higher than now expected.

(4) Slaughter cow prices strengthened in April and May, but weakened in June when the feeder cattle market responded to higher grain prices and lower cattle placements on feed. Relatively normal price declines are expected this summer and fall as pasture conditions deteriorate seasonally. However, if drought conditions should become widespread, more pronounced downward pressure on prices is likely. Utility cows at Omaha were running about $27 per 100 pounds in early July after being as high as $31 in May.

(5) There was a large supply of replacement stock on dairy farms at the beginning of 1976.

(6) The value of dairy cows has increased steadily since August 1975 to an average of $479 per head in June, up $66 from last June.

(7) Prices paid for production items thus far in 1976 have risen more slowly than last year but have averaged about a tenth higher than a year ago.

(8) The general economy continues to improve. This yields slightly better off-farm job opportunities for dairymen as employment expands. Another effect of the improving economy is the resulting strength in the demand for dairy products.

Under these conditions, milk output likely will continue to exceed year-earlier levels throughout the remainder of the year, although the rate of increase may slow. While feed prices will continue sensitive to weather and other new-crop developments, milk-feed price relationships likely will continue to favor heavier grain feeding and substantial gains in output per cow. Slightly heavier herd culling could occur later in the year, but rapid increases are not expected.

For all of 1976, milk output probably will exceed 1975's production by around 2 percent if milk prices show expected seasonal strength and feed prices do not rise sharply. Under even more favorable milk-feed price relationships, production could go higher. On the other hand, gains in output could falter if feed prices increase rapidly or if dairy sales weaken greatly and limit seasonal milk price rises.

Feed Prices Rise

Dairy feed prices have risen during the past 2 months after holding quite stable earlier this year. Farmers paid an average $143 per ton for 16 percent protein dairy ration in June, up $7 from January and a tenth above a year ago. Prices of principal dairy ration ingredients—corn and soybean meal—also increased during May and June. Corn prices at Chicago (No. 2 yellow) in early July were about $2.95, up 35 cents from early January and about the same as a year earlier, while soybean meal at Decatur was around $200 per ton, substantially above year-earlier prices.

The higher feed prices have been offset by even higher milk prices which resulted in milk-feed price relationships more favorable to dairy farmers than a year earlier. In June, a pound of milk was equal in value to 1.4 pounds of feed, up from 1.3 last June (figure 7).

Corn plantings got off to a fast start this spring and generally dry weather during May helped farmers sustain the fast pace. Consequently, the Nation's corn crop was virtually all planted by

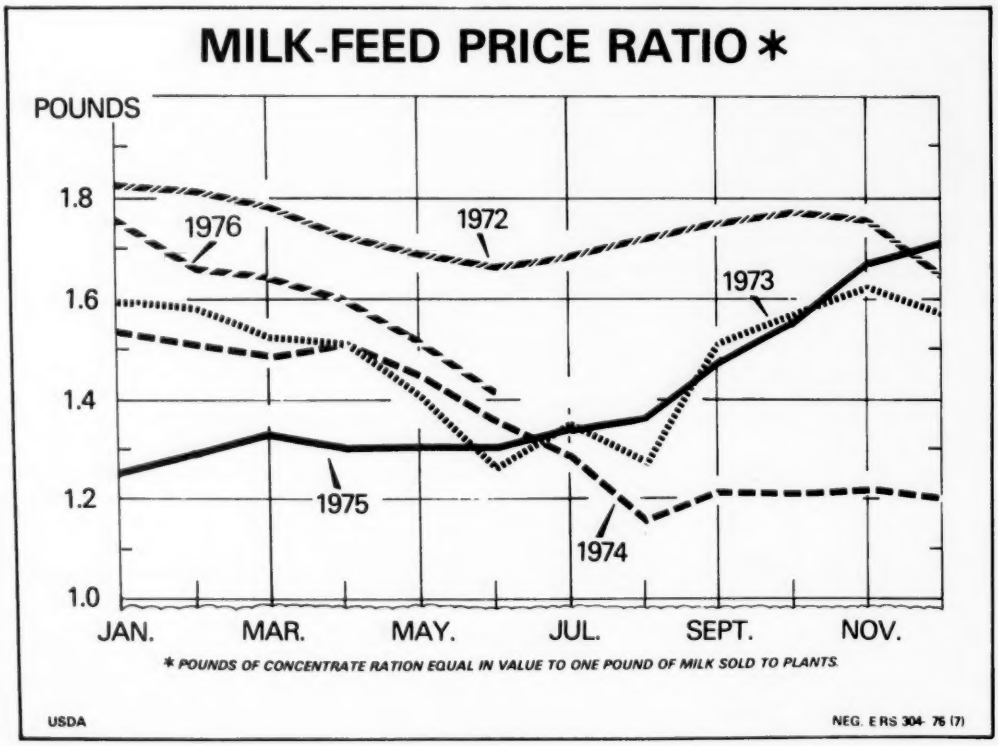

Figure 7

Milk-feed price ratio[1]

Month	1974	1975	1976
	Pounds	*Pounds*	*Pounds*
January	1.54	1.25	1.75
February	1.51	1.29	1.66
March	1.49	1.33	1.64
April	1.50	1.30	1.60
May	1.45	1.30	1.51
June	1.37	1.30	1.42
July	1.30	1.34	
August	1.16	1.36	
September	1.22	1.47	
October	1.21	1.56	
November	1.23	1.67	
December	1.20	1.70	
Average	1.34	1.39	

[1] Pounds of concentrate ration equal in value to 1 pound of milk.

June 1, well within the usual planting time frame. Soybean plantings this year have also been running well ahead of both last year and average. Larger feed grain plantings and recent favorable weather provide the potential for another big feed grain crop this year.

Pastures started out on a generally poor note this year and have remained generally poor to fair—although quite varied across the Nation. At a reading of 77 on June 1, pasture feed conditions were 9 points below a year ago and 6 points below the 1965-74 average for that date. Minnesota and parts of Wisconsin have been especially hard hit and farmers were supplementing pastures with harvested forage. The Northeast, with a rating of good to excellent, was an exception to the national pattern.

Farmers plan to harvest hay from about 62.6 million acres this year, about 1 percent more than in 1975, as high hay prices have encouraged larger hay production. Early reports indicate that hay yields were down in the dry areas of the Upper Midwest, but the quality was good. May 1 hay stocks totaled 25.6 million tons, 38 percent more than last year's low level. This was primarily due to the generally mild, open winter that prevailed in the Midwest and East. Farmers paid $71 per ton for baled alfalfa hay in June, up about $4 from a year ago but down about $2 from the April peak.

PRICES AND INCOME

Wholesale Prices Start Upward

Wholesale butter and cheese prices strengthened slightly in early June as milk production crested, and then rose substantially later in the month. This very early seasonal movement reflected a continued tight supply-demand balance in the dairy industry.

Since fluid sales have held at about last year's levels, increases in the supplies of milk available for manufacturing have been limited to gains in total milk output. In addition, about two-thirds of the increase in the supplies for manufacturing has been used for products other than the marginal uses—American cheese, butter, and nonfat dry milk—which trigger major dairy price adjustments. Coupled with low commercial stocks at the start of 1976, this resulted in less downward price adjustment to gains in milk output than would ordinarily be expected and an earlier-than-normal price strengthening.

Wholesale butter prices rose 11 cents per pound in late May and June, and Grade A butter in Chicago was quoted at about $1.01 per pound in early July, the highest level since December 1975 (figure 8). The rises were precipitated by lower butter output, concern about the adequacy of commercial stocks, and respectable butter sales—especially sales of bulk butter.

American cheese prices have risen only about 2 cents, but they had been in a relatively stronger position in recent months. At Wisconsin assembly points, 40-pound blocks were quoted at 97 cents per pound in early July. Barrel cheese was up only 1½ cent from late April. The difference between the block and barrel prices was rather wide, at almost 6 cents per pound in early July compared with only about 4 cents a year ago. Supplies of 40-pound blocks have been tighter than supplies of barrel cheese this spring, partially due to the relatively greater expansion in barrel cheese production capacity in recent years.

Wholesale prices of dried products were weak this spring, as market conditions were not nearly as tight for milk solids-not-fat as for milkfat. Despite sharply reduced production of nonfat dry milk, wholesale powder prices have remained near CCC's support purchase price of 62.4 cents per pound since April. Although reduced-price sales of Government-owned Standard grade nonfat dry milk probably were significant, the most important factor was the continued low level of sales. Substantial proportions of the former market for nonfat dry milk may have been lost in recent years to substitutes—including dry whey products. Although demand for dry whey has been growing, heavy cheese production has resulted in large sup-

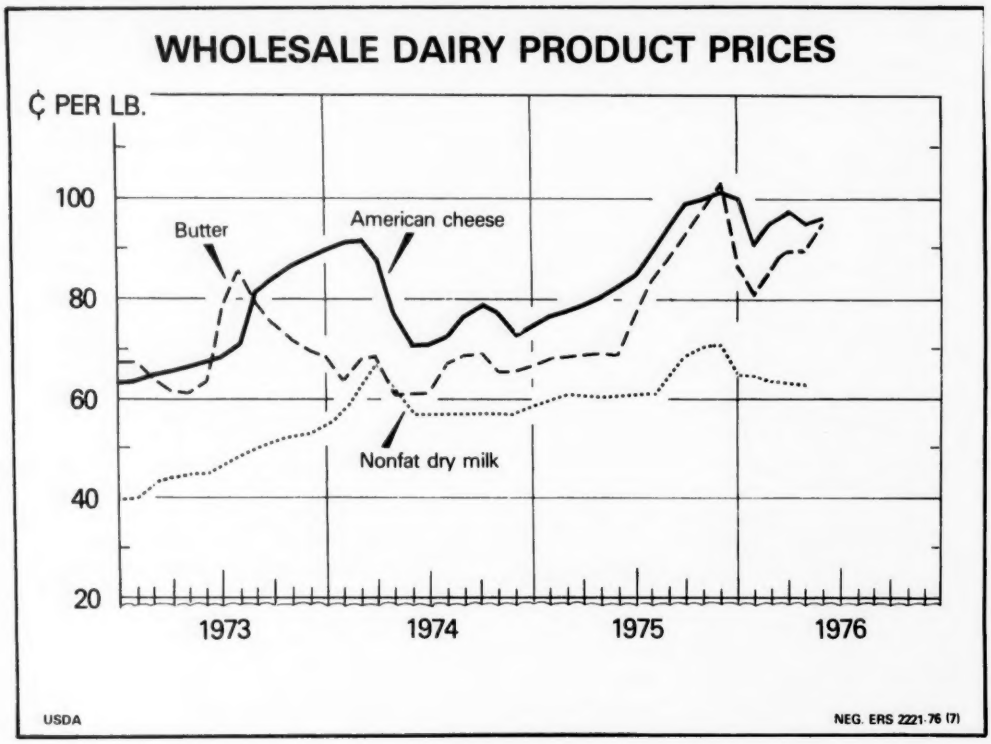

Figure 8

plies of dry whey and very low prices. Edible whey powder was selling for less than 6 cents per pound in the Central States production area by early July. Reportedly, some plants are disposing of more liquid whey and selling more condensed whey instead of drying it. Casein and lactose prices have also remained fairly low.

Among other products, evaporated milk sold for $13.54 per case in May, slightly below early 1976 but well above a year ago. Wholesale ice cream prices in May were about the same as in January but were up 5 percent from a year earlier.

The wholesale price index for dairy products, as reported by the Bureau of Labor Statistics (BLS), stood at 167.1 in May, up almost 12 percent from the previous year but still below January. Although this index probably will rise, the increase from a year ago likely will be smaller during coming months.

Wholesale butter and cheese prices show promise of a fairly substantial total seasonal rise this year. This may be especially true for butter since milkfat is in a fairly tight supply-demand balance. However, the considerably larger total milk supplies likely will forestall a repeat of last year's dramatic price jumps. In addition, wholesale prices could level off or even dip counter-seasonally if the current strong demand starts to falter.

Nonfat dry milk prices probably will remain weak since no substantial pick-up in use is seen. The situation might be further aggravated since butter-powder operations have moved into a more competitive position with American cheese plants. In any case, wholesale nonfat dry milk prices will be limited by CCC's sell-back price of 65½ cents per pound.

Farm Milk Prices Well Above 1975

Farm milk prices remained strong this spring in the face of heavy flush-season milk production. Farmers received an average $9.14 per 100 pounds of milk in June, up $1.17 from a year earlier but down more than a dollar from last December's $10.30 peak. The large seasonal drops of early 1976 have been slowed in recent months by the strength in manufacturing grade milk prices.

Manufacturing grade milk prices averaged $8.31 per 100 pounds in June, up $1.21 from last year. Adjusted to annual average fat test, manufacturing milk prices were 31 cents above the $8.13 support level. Prices of manufacturing grade milk have

Milk prices received by farmers

Month	All sold to plants			Manufacturing grade		
	1974	1975	1976	1974	1975	1976
	Dollars per 100 pounds					
January	8.89	8.37	10.20	8.13	7.00	9.07
February	8.92	8.32	9.79	8.15	7.04	8.45
March	8.96	8.18	9.72	8.14	7.02	8.53
April	8.84	8.14	9.37	7.75	7.07	8.50
May	8.26	8.03	9.23	6.87	7.07	8.31
June	7.69	7.97	9.14	6.42	7.10	8.31
July	7.62	8.23		6.31	7.30	
August	7.75	8.60		6.46	7.62	
September	8.08	9.22		6.81	8.24	
October	8.35	9.69		7.03	8.75	
November	8.49	9.99		7.02	8.99	
December	8.27	10.30		6.74	9.25	
Average	8.33	8.71		7.13	7.62	

been held up by the strength in wholesale American cheese and butter prices.

American cheese plants have paid more for milk of equivalent fat test than butter-powder operations thus far in 1976, reflecting the relatively higher wholesale prices. The difference stood at about a dime in May. Cheese plants may continue to pay more for milk this summer, but the difference likely will narrow as milk supplies tighten seasonally. Rising wholesale butter prices will help to close the gap but likely will not receive much assistance from rises in wholesale nonfat dry milk prices.

Minimum Class I prices in Federal order markets will average $10.41 in August, up $1.20 from a year ago and 7 cents from April but down 76 cents from the February peak. These changes reflect movements in the Minnesota-Wisconsin (M-W) price, the basic formula price in Federal order markets.

Prices negotiated by cooperatives, which may include charges for services rendered by cooperatives, have been relatively stable in recent months as minimum Federal order Class I prices (based on the M-W price for the second preceding month) have moved both up and down. As these negotiated prices held steady or eased slightly, payments over the order minimums have moved in the opposite direction of movements in the minimum Class I prices. The estimated average over-order payment increased approximately 45 cents per 100 pounds in March-April, dropped 25 cents in May, and rose 10 cents in June. During June, the level of the estimated average over-order payment was approximately 35 cents. Based on the 14-cent decrease in Federal order minimum prices from June to July, the average over-order payment can be expected to increase slightly, but the increase will probably be less than 10 cents.

The strong undertones of recent months in wholesale dairy product and manufacturing milk prices would appear to be a harbinger of substantial seasonal rises in farm milk prices this summer. Increases in milk supplies have readily been absorbed by the commercial market as stocks have been rebuilt and sales remained brisk. If demand for fluid milk and manufactured products holds, farm milk prices this fall could continue to show sizable seasonal increases. On the other hand, this fall's seasonal price rises would be limited if sales start to slip. In any case, the substantially larger supplies probably will keep the seasonal increase in farm milk prices below the very sharp $2.33 rise during June-December 1975.

Cash Receipts Sharply Higher

Cash receipts from dairying during April-May were up about a fifth from a year ago, after an increase of a fourth during January-March 1976. Most of the increase was the result of higher milk prices, although marketings were also greater. Although the gains from a year earlier in dairy income may well slacken in coming months, cash receipts from sales of milk and cream could reach $11 billion in 1976, up from $9.9 billion in 1975.

The index of prices paid for production items was 8 percent above a year earlier in the second quarter of 1976, compared with an 11-percent increase from a year ago the first quarter. Although dairy concentrate costs were about the same, hay prices were considerably higher and other production items rose. Production costs this summer probably will remain well above a year ago but the increase likely will not match the gains in dairy income.

The indexes of prices received and paid by farmers were recently revised for January 1965 to the present. The revisions were based on surveys which provided data for the new base period of 1971-73. These indexes and the relative importance of the items included had not been revised since 1959. The new weights for the index of prices paid by farmers increased the relative importance of production items, interest, and taxes while diminishing the importance of family living items and wage rates. Although the revisions resulted in a slightly lower index of prices paid, it will not affect the announced $8.13 or the legal maximum ($9.14) support levels for the current marketing year.

Retail Prices Steady

Retail dairy prices have been rather steady thus far in 1976. The BLS index of retail dairy prices stood at 167.4 in May, down ½ percent from the February peak. However, the May level was up 9 percent from a year earlier and was the largest

Retail dairy product prices

Item	Unit	May 1974	May 1975	Dec. 1975	May 1976
All dairy products	1967=100	154.6	153.6	165.5	167.4
Butter	c/lb.	94.1	95.3	124.6	120.6
Processed American cheese	c/½-lb.	75.7	74.2	85.1	85.7
Ice cream	c/½-gal.	105.2	121.5	126.0	125.3
Whole milk: At stores	c/½-gal.	80.4	77.4	81.1	82.0
Evaporated milk	c/can	28.6	30.4	32.3	34.1
Skim milk: At stores	c/qt.	42.0	41.9	42.4	44.5

year-to-year rise since October 1974. The increase from a year ago for dairy was considerably greater than the 5-percent rise for all food or the 6-percent rise for all items in the Consumer Price Index.

Retail dairy prices have not reflected the declines in farm milk prices, as the farm-retail price spread for all dairy products in the market basket has recovered from the reduced levels of late 1975. Between the second and fourth quarters of 1975, only about two-thirds of the increase in the farm value of dairy products was passed on to consumers. Since then, the spread has returned to levels about the same or slightly above the spring of 1975.

Fluid whole milk prices at retail eased slightly this spring and were only 6 percent above a year ago. Reduced farm-retail price spreads for fluid milk have limited retail price rises and are partially responsible for maintaining the strength in fluid sales. After declining during the first quarter of 1976, retail butter prices rose again this spring and were more than a fourth higher than a year ago in May (figure 9). Meanwhile, retail margarine prices were well below a year ago and the price of margarine, as reported by BLS, was less than half the butter price, compared with about two-thirds a year ago.

Although the retail price of processed American cheese was down slightly from early 1976, it remained 15 percent above May 1975. This compared with an increase of almost a tenth in all meat prices at retail and a much smaller rise in beef prices.

Prices of manufactured dairy products at retail probably will start to rise seasonally this summer with increases in retail fluid milk prices starting shortly after. Retail dairy prices could show a substantial seasonal rise by yearend, but they are not likely to jump as they did last year and the year-to-

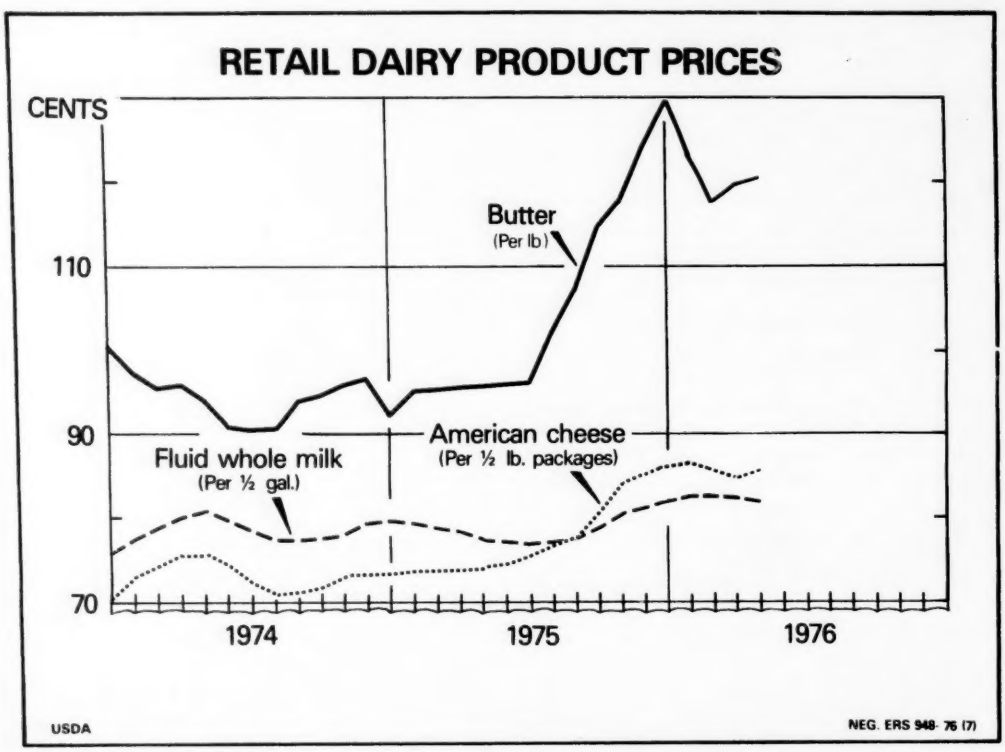

Figure 9

year increase probably will diminish somewhat. For all of 1976, retail prices likely will average 7-9 percent above 1975.

UTILIZATION

Manufactured Products Use More Milk

About 3 percent more milk went into manufacturing during April-May than a year ago. Butter and nonfat dry milk output was held to low levels as cheese production siphoned away substantial quantities of milk and other manufactured products also used more. The increases in supplies available for manufacturing were almost entirely the result of increased milk output, since fluid milk sales were about the same as last year.

American cheese production hit record highs in April and May and was up 22 percent from a year earlier. A similar gain in June was indicated by weekly production estimates. Output of other varieties was up 13 percent, also at record levels. The strong wholesale cheese prices have allowed cheese operations to attract enough milk to operate at near-capacity levels.

Production of selected manufactured dairy products, 1975-76

Item	January-May		Change from year earlier	
	1975	1976[1]	1975	1976[1]
	Million pounds	*Million pounds*	*Percent*	*Percent*
Butter	491.6	450.7	+16.0	-8.3
Cheese:				
American	716.4	856.0	-17.5	+19.5
Other	458.0	519.8	+2.6	+13.5
Cottage, creamed	368.6	378.8	-.4	+2.8
Canned milk	400.3	420.5	-16.6	+5.0
Dry whole milk	22.4	37.8	-39.1	+68.7
Ice cream (Mil. gal.)	326.3	324.3	+6.7	-.6
Milk equivalent[2]	26,154	27,089	+.2	+3.6
Nonfat dry milk	498.4	408.9	+22.8	-18.0

[1] Preliminary. [2] Total all reported manufactured products.

Creamed cottage cheese output remained close to year-earlier levels in April-May, although production was slightly ahead of last year for the first 5 months of 1976. Lowfat cottage cheese output appears to have resumed its upward trend this year and was 4 percent greater than a year ago during April-May.

Butter and nonfat dry milk production has been reduced by the surge in cheese output. Butter production was down 15 percent from a year ago in April and recovered slightly to only a 7-percent drop in May. The output of butter showed very little seasonal increase during February-May. In fact, May production, normally the seasonal peak, was actually below January for the first time on record. Preliminary estimates place June output still below last year.

Nonfat dry milk production was reduced even further. April-May output was down almost a fifth from last year, reflecting the decline in whole milk going to butter-powder operations.

Frozen dessert production was down slightly this spring from last year's high levels. Strong ice cream production has been one of the factors contributing to the tightness in the milkfat market.

Supplies of milk available for manufacturing likely will remain above last year in coming months. Cheese production probably will draw milk away from butter-powder operations but the shift may not be as dramatic as during the recent flush season.

Wisconsin out-of-State milk shipments remained below year-earlier levels this spring. The widespread increases in milk production reduced the number of shipments needed to meet the demand in other areas.

Wisconsin out-of-state milk shipments

Month	1975		1976	
	Loads	Volume	Loads	Volume
	Number	*Thousand pounds*	*Number*	*Thousand pounds*
January	252	11,844	475	22,375
February	135	6,345	176	8,272
March	138	6,486	67	3,149
April	54	2,538	20	940
May	54	2,538	39	1,833
June	49	2,303	30	1,410
July	77	3,619		
August	164	7,708		
September	548	25,756		
October	694	32,618		
November	544	25,568		
December	384	18,048		
Total	3,093	145,371		

Dairy Sales Brisk

Dairy sales were strong this spring as jumps in cheese use and small gains in fluid sales more than offset slipping butter sales. Commercial disappearance of milk in all dairy products was up about 2½ percent in April-May, a slightly smaller gain from a year ago than in the first quarter of 1976 (table 1). Increased demand for dairy products has apparently overcome the effects of the sharply higher retail prices.

Table 1--Commercial disappearance: Total milk, annual and by quarters, 1974-76 1/

Item	1974	1975					1976 2/				
		By quarters				Annual	By quarters				Annual
		1st	2nd	3rd	4th		1st	Apr.-May	3rd	4th	
	Billion pounds										
Production	115.6	28.2	31.4	28.6	27.3	115.5	29.0	21.6			
Farm use	3.3	.8	.8	.8	.8	3.2	.8	.5			
Marketings	112.3	27.4	30.6	27.8	26.5	112.2	28.2	21.1			
Beginning commercial stocks	4.7	5.6	5.0	5.5	4.7	5.6	3.7	4.2			
Imports	2.9	.3	.2	.4	.7	1.7	.4	.2			
Total supply	119.9	33.3	35.8	33.7	31.9	119.5	32.3	25.5			
Ending commercial stocks	5.6	5.0	5.5	4.7	3.7	3.7	4.2	5.7			
Net removals	1.3	1.1	1.2	4/-.3	5/	2.0	5/	5/			
Commercial disappearance Actual	113.0	27.1	29.1	29.3	28.2	113.7	28.1	19.8			
Percent change 3/	+.5	-3.1	+2.9	+2.3	+.2	+.6	6/+2.4	+2.5			

1/ Milk equivalent, fat solids basis. Totals may not add due to rounding. 2/ Preliminary. 3/ From year earlier using unrounded data. 4/ Minus denotes domestic sales exceeded purchases. 5/ Less than 50 million pounds. 6/ On a daily average basis.

Table 2--Commercial disappearance: Selected dairy products, United States, annual 1967-75, by quarters, 1975-76

Year and quarter	Butter 1/	Cheese		Nonfat dry milk	Canned milk	Frozen products 3/
		American 2/	Other			
	Mil. lb.	Mil. lb.	Mil. lb.	Mil. lb.	Mil. lb.	Mil. gal.
1967	973.9	1,175.9	738.2	1,012.2	1,571.5	1,040.2
1968	976.0	1,213.3	803.0	1,058.0	1,496.8	1,082.3
1969	921.9	1,281.0	861.6	1,042.1	1,376.1	1,092.2
1970	898.2	1,398.0	909.1	983.2	1,213.8	1,097.3
1971	847.1	1,454.8	987.0	981.8	1,186.9	1,102.4
1972	885.4	1,595.7	1,127.8	919.2	1,102.6	1,108.6
1973	855.6	1,677.1	1,210.2	1,110.1	1,056.7	1,118.6
1974	929.9	1,780.6	1,276.5	809.9	999.5	1,124.3
1975	947.7	1,717.0	1,331.8	689.5	950.8	1,176.0
1975-1st	254.7	398.3	305.8	146.6	240.2	246.7
2nd	239.3	442.2	324.5	128.3	222.3	334.2
3rd	217.3	443.4	334.9	237.6	240.1	351.3
4th	236.2	432.9	366.6	176.9	248.2	243.7
1976-1st	248.8	460.2	333.6	189.6	230.1	253.7
Apr.-May	146.4	328.6	241.6	129.8	132.3	200.6
3rd						
4th						
	1975-76 percent change					
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
1st 4/	-3.4	+14.2	+8.1	+27.6	-5.3	+1.8
Apr.-May	-10.0	+10.9	+14.1	+56.2	-8.8	-4.7
3rd						
4th						

1/ Imports include butter equivalent of butteroil. 2/ Imports include Colby cheese; stocks do not include processed cheese. 3/ Excludes Mellorine. 4/ On a daily average basis.

Table 3--Milk and dairy products sales (domestic disappearance, commercial sources) total and per capita, selected years, United States, 1965-75 1/

Year	Fluid milk product sales					Butter	Cheese			Evaporated and condensed	
	Fluid whole milk	Cream 2/	Low-fat milk 3/	Total			Whole and part skim milk 5/		Cottage cheese 6/	Whole milk	Skimmed and buttermilk
				Product weight	Whole milk equivalent 4/		American	Other			
	Million pounds										
	Total										
1965	49,750	1,430	6,390	57,570	55,400	1,122	1,106	653	901	2,092	967
1968	47,785	1,255	9,400	58,440	53,700	986	1,204	794	928	1,735	948
1969	46,850	1,185	10,640	58,675	52,800	925	1,259	849	973	1,528	989
1970	45,875	1,130	11,525	58,530	52,000	902	1,393	892	1,060	1,349	1,016
1971	45,295	1,125	12,800	59,220	51,800	878	1,452	971	1,108	1,303	1,039
1972	45,390	1,150	14,180	60,720	53,220	861	1,573	1,110	1,133	1,236	980
1973	44,130	1,160	15,390	60,680	52,400	846	1,661	1,193	1,103	1,194	894
1974	41,710	1,185	16,425	59,320	50,500	917	1,771	1,267	992	1,154	732
1975 7/	41,170	1,235	17,855	60,260	51,400	944	1,692	1,317	1,066	1,107	770
	Per capita 8/										
	Pounds										
1965	264	7.6	34.0	306	294	5.8	5.7	3.4	4.7	10.8	5.0
1968	245	6.4	48.1	299	275	4.9	6.0	4.0	4.7	8.7	4.8
1969	237	6.0	53.9	297	267	4.6	6.3	4.2	4.8	7.6	4.9
1970	229	5.6	57.5	292	260	4.4	6.8	4.4	5.2	6.6	5.0
1971	223	5.5	63.0	292	255	4.3	7.0	4.7	5.4	6.3	5.0
1972	221	5.6	69.1	296	259	4.1	7.6	5.3	5.4	5.9	4.7
1973	213	5.6	74.3	293	253	4.0	7.9	5.7	5.3	5.7	4.3
1974	200	5.7	78.6	284	242	4.3	8.4	6.0	4.7	5.5	3.5
1975 7/	195	5.9	84.7	286	244	4.4	7.9	6.2	5.0	5.2	3.6

Year	Frozen products					Dry products				
	Ice cream	Ice milk	Sherbet	Other	Mellorine	Whole milk	Nonfat dry milk	Buttermilk	Whey	Malted milk
	Million pounds									
	Total									
1965	3,634	1,270	295	39	255	61	931	79	113	20
1968	3,711	1,429	320	42	268	50	1,030	67	223	18
1969	3,674	1,515	333	36	267	44	1,040	61	231	18
1970	3,656	1,577	318	40	249	43	960	50	294	18
1971	3,676	1,582	317	47	232	32	958	55	319	19
1972	3,685	1,599	325	53	218	24	853	48	377	N.A.
1973	3,714	1,604	346	70	191	21	1,056	39	384	N.A.
1974	3,753	1,628	325	56	166	15	839	44	453	N.A.
1975 7/	4,000	1,620	313	67	144	16	661	44	9/487	N.A.
	Per capita 8/									
	Pounds									
1965	18.8	6.6	1.5	0.2	1.3	0.3	4.8	0.4	0.6	0.1
1968	18.6	7.2	1.6	.2	1.3	.3	5.2	.3	1.1	.1
1969	18.2	7.5	1.7	.2	1.3	.2	5.2	.3	1.2	.1
1970	17.9	7.7	1.6	.2	1.2	.2	4.7	.2	1.5	.1
1971	17.8	7.7	1.5	.2	1.1	.2	4.6	.3	1.6	.1
1972	17.7	7.7	1.6	.3	1.0	.1	4.1	.2	1.8	N.A.
1973	17.7	7.6	1.6	.3	.9	.1	5.0	.2	1.8	N.A.
1974	17.8	7.7	1.5	.3	.8	.1	4.0	.2	2.1	N.A.
1975 7/	18.8	7.6	1.5	.3	.7	.1	3.1	.2	2.3	N.A.

1/ Excludes milk used on farms where produced and distribution from USDA supplies; includes sales to the Armed Services for use in the United States. See DS-328, November 1969, table 12 for 1950-67 data. 2/ Includes milk and cream mixtures. 3/ Includes skim milk, buttermilk, and flavored milk drinks. 4/ Fat solids basis. 5/ Excludes cottage cheese. 6/ Includes full-skim American. 7/ Preliminary. 8/ Based on resident population, except fluid milk product sales--based on estimated population using fluid products from purchased sources. 9/ Includes modified whey products.

Table 4--Domestic disappearance, commercial and non-commercial sources, all milk and selected dairy products, United States, 1969-75

Year and product	Civilian disappearance					Total military utilization	Consumption excluding USDA donations		
	Consumed on farms	USDA donations	National school lunch and special milk programs	From commercial sources	Total		Civilian	Military	Total
	Million pounds								
Total milk 1/									
1969	2,570	2/4,545	3,435	102,682	113,232	2,696	108,687	2,051	110,738
1970	2,306	2/4,187	3,462	103,218	113,173	2,419	108,986	1,788	110,774
1971	2,099	2/4,526	3,494	103,757	113,876	2,031	109,350	1,608	110,958
1972	1,940	2/3,906	3,500	106,399	115,745	1,671	111,839	1,258	113,097
1973	1,780	2/3,521	3,500	106,590	115,391	1,257	111,870	1,257	113,127
1974	1,703	2/1,459	3,500	107,287	113,949	1,137	112,490	1,137	113,627
1975 3/	1,654	2/2,296	3,500	108,021	115,471	1,075	113,175	1,075	114,250
Butter									
1969	8	166	---	905	1,079	50	913	20	933
1970	6	168	---	887	1,061	45	893	15	908
1971	3	171	---	866	1,040	32	869	12	881
1972	---	159	---	858	1,017	23	858	3	861
1973	---	162	---	837	999	9	837	9	846
1974	---	48	---	908	956	9	908	9	917
1975 3/	---	73	---	935	1,008	9	935	9	944
American cheese									
1969	---	90	---	1,249	1,339	11	1,249	10	1,259
1970	---	46	---	1,335	1,431	8	1,385	8	1,393
1971	---	75	---	1,385	1,520	7	1,445	7	1,452
1972	---	46	---	1,568	1,614	5	1,568	5	1,573
1973	---	4	---	1,657	1,661	4	1,657	4	1,661
1974	---	43	---	1,768	1,811	3	1,768	3	1,771
1975 3/	---	73	---	1,689	1,762	3	1,689	3	1,692
Fluid milk and cream 1/									
1969	2,397	---	3,435	48,215	54,047	1,150	54,047	1,150	55,197
1970	2,170	---	3,462	47,624	53,256	1,050	53,256	1,050	54,306
1971	2,031	---	3,494	47,356	52,881	950	52,881	950	53,831
1972	1,940	---	3,500	48,870	54,310	850	54,310	850	55,160
1973	1,780	---	3,500	48,150	53,430	750	53,430	750	54,180
1974	1,703	---	3,500	46,350	51,553	650	51,553	650	52,203
1975 3/	1,654	---	3,500	47,300	52,454	600	52,454	600	53,054
Nonfat dry milk									
1969	---	117	---	1,031	1,148	9	1,031	9	1,040
1970	---	126	---	953	1,079	7	953	7	960
1971	---	130	---	953	1,083	5	953	5	958
1972	---	107	---	848	955	5	848	5	853
1973	---	58	---	1,055	1,113	1	1,055	1	1,056
1974	---	46	---	838	884	1	838	1	839
1975 3/	---	36	---	660	696	1	660	1	661

1/ Milk equivalent, fat solids basis.
2/ Includes evaporated milk, as well as butter and American cheese.
3/ Preliminary.

Cheese sales have spurted again this spring. April-May commercial disappearance of American types was up 11 percent from last year and the highest on record (table 2). Sales of other varieties were even stronger—14 percent larger than last year. Although retail meat prices have been slightly above a year ago in recent months, they may not have had a sizable influence on cheese sales since the rise in retail cheese prices has been much sharper. Rising real consumer income may have been much more significant. In addition, the increases in cheese sales were not nearly as dramatic when compared with 1974 levels.

Although well below last year, butter sales were fairly good this spring. Commercial disappearance of butter during April-May was down a tenth from 1975 but was comparable to the 1970-74 average. The sharply higher retail prices of butter and lower retail margarine prices probably have taken their toll on retail butter sales, but demand among bulk users appears fairly firm. However, there may have been some expansion of user holdings recently in anticipation of higher prices this fall.

Although commercial disappearance of nonfat dry milk was well above a year ago this spring, it remained weak compared with earlier years. Commercial disappearance of nonfat dry milk thus far in 1976 has generally been in the 60-65 million-pounds-a-month range, far below the 70-85 million-pound rate of the early 1970's. Although recent price stability and the prospect of continued stable prices may have stimulated usage slightly, the large price advantage of substitutes has kept usage weak.

Among other products, frozen dessert sales this spring were slightly below last year's very strong levels. Retail ice cream prices have been only slightly higher than 1975 and have remained fairly competitive with other desserts. Cottage cheese sales in April-May were about the same as 1975 but well below the levels of the early 1970's. Commercial disappearance of canned milk this spring continued its downward trend.

The sales picture for dairy products in the coming months is fairly bright. With fluid use still growing and butter sales holding at fair levels, expanding cheese sales may well keep total dairy sales somewhat above a year ago. Strong ice cream sales likely will add to the demand for milkfat but nonfat dry milk use shows no signs of substantial improvement. Dairy sales could weaken, however, if cheese demand starts to slip or if retail prices jump again this fall. Even so, commercial disappearance of milk in all products could post a small gain for all of 1976.

Fluid Milk Sales Strong

Fluid milk sales have been a very significant factor in supporting wholesale dairy product and farm milk prices this year. Sales in major urban markets have been slightly above a year earlier during every month so far in 1976 and substantially above 2 years ago. Although retail fluid milk prices were considerably above a year earlier, the increases were in line with other consumer goods and improved consumer incomes may also have helped.

April-May fluid sales were up almost 1 percent from 1975, even though April sales were limited by this year's later Easter. Increases in lowfat and skim milk items have been sufficient to offset small declines in whole milk sales. Cream sales have also grown this year and yogurt use has maintained the rapid growth rate of 1975.

1975 Per Capita Sales of Fluid Products

With retail prices averaging about the same as 1974, per capita sales of fluid milk products in 1975 rebounded somewhat from the sharp drop in 1974. Per person use of all fluid milk and cream items last year was more than 1 percent above a year earlier.

Per capita sales of whole milk were down about 2 percent last year, compared with a 6-percent drop in 1974 and a 4-percent decline in 1973. The decline in whole milk sales was more than offset by the strong gain in lowfat milk sales, which were up 10 percent. After holding steady in 1974, per capita sales of skim milk resumed their long upward trend. Flavored milk use also posted a significant gain while per person sales of buttermilk just barely dipped. Total per capita sales of beverage milk products were up not quite 1 percent last year (tables 6-8).

The market for fluid cream no longer appears to be shrinking (figure 10). Although per person sales of half-and-half slipped slightly in 1975, both light and heavy cream sales have more than kept pace with the growth in population since the early 1970's. Better quality control and the trend toward more natural foods probably have helped cream sales in recent years. Per capita sour cream sales spurted again last year. Per person use of sour cream has grown more than a fourth since 1973 as consumers have discovered its versatility.

The average American ate more than 2 pounds of yogurt last year, an increase of almost a fourth from 1974. Yogurt use per person has more than doubled since 1970. A healthful, natural image has

Table 5--Sales of individual fluid products as a proportion of average daily fluid milk sales, selected Federal order markets, 1965, 1970, and 1972-75

Fluid items	1965	1970	1972	1973	1974	1975
	Percent					
Whole milk 1/	83.7	74.1	69.8	67.6	65.2	63.2
Flavored whole milk	2.6	2.7	3.0	3.1	2.9	2.7
Total whole milk items	86.3	76.8	72.8	70.7	67.7	65.9
Low-fat (2%) milk	2/	13.8	17.1	18.5	20.4	22.1
Plain	2/	3.8	5.6	7.4	10.2	12.4
Solids added	2/	10.0	11.5	11.1	10.2	9.7
Skim milk	8.6	4.3	4.8	5.4	5.7	5.7
Plain	2.8	1.1	1.2	1.5	1.9	2.1
Solids added	5.9	3.2	3.6	3.9	3.8	3.6
Buttermilk 3/	2.0	2.2	2.4	2.4	2.0	1.9
Flavored milk drinks	.7	.9	1.0	1.1	1.5	1.8
Total skim and low-fat milk items 4/	11.3	21.2	25.2	27.4	26.1	27.9
Milk and cream mixtures	1.3	1.0	1.0	1.0	.9	.9
Light cream	.4	.2	.1	.2	.2	.2
Heavy cream	.3	.2	.2	.2	.2	.2
Sour cream	.3	.3	.4	.4	.5	.5
Total cream items 4/	.9	.7	.7	.8	.9	.9
Eggnog	.1	.2	.2	.2	.2	.2
Total fluid milk and cream 4/	100.0	100.0	100.0	100.0	100.0	100.0

1/ Includes whole milk equivalent of small quantity of concentrated milk.
2/ Included with skim milk.
3/ Includes small quantities of yogurt and cultured specialties. Yogurt was .13 percent in 1970, .21 percent in 1971, .29 percent in 1972, .33 percent in 1973, .36 percent in 1974, and .44 percent in 1975 of total fluid sales.
4/ Totals may not add due to rounding.

Table 6--Sales of individual beverage milk products, United States, 1954-1975

Year	Plain whole milk	Low-fat milk	Skim milk	Filled and imitation milk	Flavored milk and drinks	Buttermilk	Total
				1,000 pounds			
1954	38,604,960	34,240	961,460	0	1,070,850	1,218,300	41,889,810
1955	39,915,940	50,030	1,046,750	0	1,146,650	1,236,580	43,395,950
1956	41,277,190	66,510	1,182,590	0	1,188,750	1,195,880	44,910,920
1957	42,217,840	80,540	1,351,600	0	1,162,660	1,184,010	45,996,650
1958	42,382,790	192,410	1,491,710	0	1,180,050	1,159,810	46,344,770
1959	42,548,300	284,540	1,648,330	0	1,189,280	1,151,930	46,822,380
1960	42,999,350	389,180	1,830,140	0	1,200,250	1,139,730	47,558,650
1961	42,606,330	600,960	1,977,610	0	1,278,160	1,092,480	47,555,540
1962	43,039,510	840,020	2,078,490	0	1,343,060	1,159,920	48,461,000
1963	43,749,260	1,170,690	2,227,840	0	1,489,730	1,171,890	49,809,410
1964	44,205,430	1,605,890	2,336,180	0	1,570,800	1,166,260	50,884,560
1965	44,512,450	2,056,550	2,368,030	0	1,646,860	1,155,750	51,739,640
1966	44,671,870	2,769,740	2,097,370	3,100	1,720,380	1,155,030	52,417,490
1967	43,218,510	3,550,750	2,077,110	45,600	1,662,250	1,139,350	51,693,570
1968	42,705,970	4,427,400	2,207,370	163,610	1,757,620	1,142,030	52,404,000
1969	41,934,850	5,396,130	2,320,250	153,620	1,748,690	1,146,670	52,700,210
1970	41,511,710	6,162,570	2,378,400	122,490	1,762,900	1,134,950	53,073,020
1971	40,595,920	7,287,010	2,345,370	108,580	1,870,720	1,149,350	53,356,950
1972	40,252,266	8,277,310	2,608,977	96,610	2,001,614	1,156,468	54,393,245
1973	38,849,170	9,189,215	2,949,038	81,339	2,044,324	1,075,229	54,188,315
1974 1/	36,908,055	9,778,193	2,970,078	74,503	2,083,346	1,015,804	52,829,979
1975 1/	36,428,250	10,873,351	3,074,031	56,804	2,193,763	1,017,836	53,644,035

1/ Preliminary.

Table 7 --Sales of individual cream and specialty products, United States, 1954-75

Year	Half-and-half	Light cream	Heavy cream	Sour cream and dips	Imitation sour cream	Yogurt	Eggnog	Total
				1,000 pounds				
1954	559,400	372,880	209,530	96,980		14,960	32,170	1,285,920
1955	604,820	351,750	205,860	100,520	0	16,850	36,250	1,316,050
1956	652,330	335,470	207,180	105,980	0	18,760	36,200	1,355,920
1957	687,560	304,070	202,100	113,490	0	21,160	38,080	1,366,460
1958	722,050	283,770	193,730	123,730	0	25,630	42,790	1,391,700
1959	748,800	264,130	183,740	136,810	0	38,330	45,850	1,417,600
1960	795,500	250,070	177,940	154,440	0	44,130	45,840	1,467,920
1961	805,960	231,360	169,190	163,310	0	48,580	46,080	1,464,480
1962	785,090	220,110	173,700	175,330	0	45,520	49,610	1,449,360
1963	773,140	192,740	167,720	184,280	0	50,240	49,420	1,417,540
1964	759,870	175,020	162,190	172,480	0	53,020	47,140	1,369,720
1965	749,180	162,420	157,210	178,750	0	60,640	48,770	1,356,970
1966	732,230	143,770	148,420	186,100	30	70,030	52,290	1,332,870
1967	687,040	125,000	138,620	182,520	730	90,230	50,440	1,274,580
1968	661,880	101,930	127,200	186,900	1,640	123,520	57,750	1,260,820
1969	632,170	90,500	113,450	189,830	1,680	168,960	56,920	1,253,510
1970	593,420	75,980	112,310	222,600	1,750	171,570	61,330	1,238,960
1971	560,910	66,610	112,490	251,320	1,910	236,290	82,640	1,312,170
1972	552,962	57,208	116,925	268,269	1,660	284,036	96,326	1,377,386
1973	559,614	80,470	121,576	276,126	N.A.	317,934	92,018	1,447,738
1974 1/	528,760	84,107	118,559	315,840	N.A.	343,225	95,443	1,485,934
1975 1/	524,001	85,116	124,606	359,742	N.A.	431,091	93,916	1,618,472

1/ Preliminary.

Table 8--Per capita sales of selected fluid milk items, 1954-75

Year	Plain whole milk	Lowfat milk	Skim milk	Flavored milk and drinks	Butter-milk	Yogurt	Eggnog	Half-and-half	Light cream	Heavy cream	Sour cream and dips
					Pounds						
1954	262.44	0.23	6.54	7.28	8.28	0.10	0.22	3.80	2.53	1.42	0.66
1955	264.69	.33	6.94	7.60	8.20	.11	.24	4.01	2.33	1.37	.67
1956	267.17	.43	7.65	7.69	7.74	.12	.23	4.22	2.17	1.34	.69
1957	266.02	.51	8.52	7.33	7.46	.13	.24	4.33	1.92	1.27	.72
1958	260.66	1.18	9.17	7.26	7.13	.16	.26	4.44	1.75	1.19	.76
1959	255.24	1.71	9.89	7.13	6.91	.23	.28	4.49	1.58	1.10	.82
1960	250.87	2.27	10.68	7.00	6.65	.26	.27	4.64	1.46	1.04	.90
1961	243.19	3.43	11.29	7.30	6.24	.28	.26	4.60	1.32	.97	.93
1962	240.85	4.70	11.63	7.52	6.49	.25	.28	4.39	1.23	.97	.98
1963	240.38	6.43	12.24	8.19	6.44	.28	.27	4.25	1.06	.92	1.01
1964	238.56	8.67	12.61	8.48	6.29	.29	.25	4.10	.94	.88	.93
1965	236.52	10.93	12.58	8.75	6.14	.32	.26	3.98	.86	.84	.95
1966	234.13	14.52	10.99	9.02	6.05	.37	.27	3.84	.75	.78	.98
1967	223.70	18.38	10.75	8.60	5.90	.47	.26	3.56	.65	.72	.94
1968	218.56	22.66	11.30	8.99	5.84	.63	.30	3.39	.52	.65	.96
1969	212.11	27.29	11.74	8.85	5.80	.85	.29	3.20	.46	.57	.96
1970	207.14	30.75	11.87	8.80	5.66	.86	.31	2.96	.38	.56	1.11
1971	199.88	35.88	11.55	9.21	5.66	1.16	.41	2.76	.33	.55	1.24
1972	196.07	40.32	12.71	9.75	5.63	1.38	.47	2.69	.28	.57	1.31
1973	187.50	44.35	14.23	9.87	5.19	1.53	.44	2.70	.39	.59	1.33
1974 1/	176.68	46.81	14.22	9.97	4.86	1.64	.46	2.53	.40	.57	1.51
1975 1/	172.81	51.58	14.58	10.41	4.83	2.04	.45	2.49	.40	.59	1.71

1/ Preliminary.

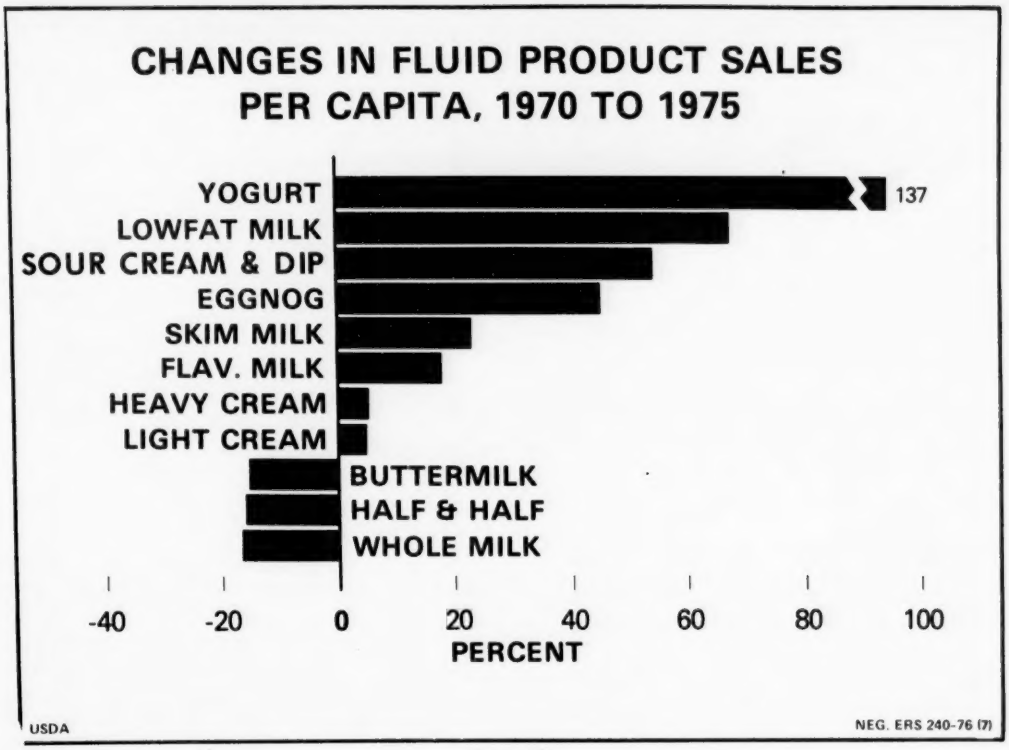

Figure 10

helped yogurt sales and it appears to be taking hold in areas where sales used to be negligible. Eggnog sales, a winter holiday item, just maintained their 1974 per capita level although they were far above most earlier years.

Commercial Stocks Rebuilt

Commercial dairy stocks had returned to substantial levels by the start of June but still appeared fairly tight in light of brisk dairy sales. Commercial holdings totaled 5.7 billion pounds milk equivalent (fat solids basis) on June 1, up 8 percent from a year earlier but still well below 1974. Commercial stocks had risen 2 billion pounds since February 1. June 1 commercial stocks were well above levels of the early 1970's but unlike the early 1970's, there are no government-owned stocks of butter or cheese to reenter the commercial market if needed later this year.

Stocks of butter in commercial hands reached almost 63 million pounds on June 1, up 70 percent from a year ago. However, 1975 holdings were augmented late last summer by the sale of 21 million pounds of CCC-owned butter. The June 1 commercial butter stocks may well be somewhat snug if the demand for milkfat remains strong.

Dairy product stocks

Item	June 1, 1974	June 1, 1975	June 1, 1976
	Million pounds	*Million pounds*	*Million pounds*
Butter			
Commercial	88.2	36.8	62.6
Total	97.4	85.1	67.1
American cheese			
Commercial	454.3	387.0	373.0
Total	454.8	390.8	373.4
Other cheese			
Commercial	78.7	62.4	59.7
Nonfat dry milk			
Manufacturers'	148.0	119.2	96.9
Total	148.0	382.7	463.6
Milk equivalent[1]			
Commercial	7,160	5,242	5,683
Total	7,354	6,277	5,779

[1] Total all dairy products.

Commercial stocks of American cheese remained below a year earlier. On June 1, these holdings had risen to 373 million pounds but still were down almost 4 percent from a year ago. Strong sales

have limited the groth in commercial stocks, as well as increased the demand for stocks, and the June 1 stocks remained tight. Stocks of other cheese varieties, at 60 million pounds, were also below last year and, unlike American types, also below the 1970-73 average. Although commercial cheese holdings probably will rise further seasonally, these stocks likely will continue tight unless sales start to slip.

Manufacturers' stocks of nonfat dry milk reached 97 million pounds on June 1, well under the last 2 years. However, these holdings probably were ample since sales are expected to stay weak and government supplies are heavy.

Government Purchases Light

The general tightness in the dairy markets has been most clearly reflected in the almost negligible government removals of milkfat. During the first half of 1976, CCC removals were equivalent to less than 0.1 billion pounds of milk, compared with 2.3 billion pounds a year ago. This year's January-June removals were the lowest in 25 years. Practically no butter and only 5 million pounds of cheese had been removed from the commercial markets, although some evaporated milk was purchased for donation use. USDA removals of nonfat dry milk were more significant than for other products but were fairly modest. CCC had net purchases of about 63 million pounds during January-June, far below the 369 million pounds a year ago. The sharp drops in nonfat dry milk output and small increases in commercial use have limited government purchases this year.

USDA dairy purchases[1]

Item	January-June		
	1975	1976	Change
	Million pounds	*Million pounds*	*Percent*
Butter	82	([2])	---
American cheese	63	5	-92.1
Nonfat dry milk	369	63	-82.9
Evaporated milk	13	14	+7.7
Milk equivalent	2,341	87	-96.3

[1] Delivery basis. [2] Less than 500,000 pounds.

Any CCC purchases of butter and cheese during the rest of 1976 likely would be small since commercial holdings are modest and milk production will be shrinking seasonally. However, USDA may buy significant quantities of nonfat dry milk since supplies are likely to exceed expected demand, especially as butter-powder operations move into a more competitive position for milk.

Uncommitted CCC stocks

Item	June 30	
	1975	1976
	Million pounds	*Million pounds*
Butter (bulk)	61.2	0
American cheese	18.2	0
Nonfat dry milk	439.7	392.6

Although USDA held no uncommitted inventories of butter or cheese on July 1, CCC still had large quantities of nonfat dry milk. Uncommitted inventories stood at 393 million pounds on July 1, down from 440 million pounds a year ago. These holdings probably will remain substantial in coming months.

1975 Promotional Activities Under Federal Milk Orders[1]

Since 1971, producers have been authorized to develop advertising and promotion programs within the framework of the Federal milk order programs. Advertising and promotion programs currently are in effect in 17 Federal order markets.

The assessment rate in each of the 17 markets is currently set at 5 cents per hundredweight. One market has held a hearing to consider raising the assessment to 7 cents per hundredweight.

Based on 1975 deliveries, about $8.6 million, an increase of over 4 percent from 1974, was available for advertising and promotion under the 17 pro-

Federal milk orders with Advertising and Promotion Programs, January 1, 1976

Order	Program effective[1]
Central Arkansas	January 1973
Eastern Ohio-Western Pennsylvania	July 1973
Fort Smith	January 1973
Indiana	October 1972
Kansas City	April 1973
Lubbock-Plainview	January 1973
Memphis	January 1973
Middle Atlantic	April 1972
Nebraska-Western Iowa	April 1973
Neosho Valley	January 1973
Oklahoma Metropolitan	January 1973
Red River Valley	January 1973
Rio Grande Valley	January 1973
St. Louis-Ozarks	April 1973
Texas	July 1976[2]
Texas Panhandle	January 1973
Wichita	January 1973

[1] Month and year assessment on marketings began. [2] 5 Texas programs effective January 1973, 1 Texas program effective July 1973. These programs merged into Texas order, July 1976.

[1] Prepared by Kay Stang, Dairy Marketing Specialist, AMS.

grams. The estimate took into account the refund to producers who elected not to participate in the program and to producers from whom deductions for advertising and promotion are required under authority of a State law. Currently, Iowa, Kentucky, Minnesota, New York, and North Dakota have such programs and have producers in Federal order markets with such programs. The matter is expected to be placed before farmers in Wisconsin during 1976. The estimate also reflects the expenses incurred by the market administrators in carrying out their duties in connection with the program. The following tabulation shows how the 17 advertising and promotion Agencies budgeted their funds during 1975.

Budgeted to:	Amount	Share of total
	Thousand dollars	*Percent*
United Dairy Industry Association:		
Nationwide programs	1,506	17.5
Local market programs	3,597	41.9
Local Dairy Council units	2,687	31.3
Other local market promotion programs	606	7.0
Administrative expenses	196	2.3
Total	8,592	100.0

The order provided that any producer may request and obtain, quarterly, a refund of the monies deducted. The rate of participation has varied widely among markets. In 1975, total producer participation averaged between 84.8 and 79.8 percent. In each of the quarters over 34,000 producers marketed milk under Federal milk orders containing advertising and promotion programs.

FOREIGN TRADE AND DAIRY TRENDS

Dairy Imports Up Slightly

Although imports of dairy products thus far in 1976 have been higher than 1975, they were at levels typical of 1970-72. January-May imports were equivalent to less than 0.7 billion pounds of milk, up more than a fourth from a year ago (table 9). Imports have been a very minor proportion of total dairy supplies since mid-1974 and were especially low in early 1975 (table 10).

Both quota and non-quota cheese have been imported in larger quantities this year and this recovery was primarily responsible for total imports, on a milk equivalent basis, returning to the levels of the early 1970's. Although the U.S. market for cheese has been attractive, the various countervailing duty decisions limited cheese imports to typical historic levels.

Imports of other quota items, especially high-fat items, were also above a year earlier during January-May. However, these items are limited by very small quotas and would have little impact on total imports even if the quotas were completely filled this year (a very unlikely occurrence). Among non-quota items, low casein prices have resulted in a recovery in casein imports from the low levels of 1975, but imports remained below earlier years. Heavy domestic supplies kept lactose imports very low, only about a tenth as much as a year ago, during January-May.

Final determinations by the Treasury Department have been made on the countervailing duty cases regarding cheese from Norway, Finland, and Sweden. These determinations and the accompanying agreements follow earlier settlements made with the European Community (EC), Austria, and Switzerland. These decisions have generally resulted in European countries eliminating or substantially reducing subsidies on most of the cheese involved, thereby raising prices of this cheese shipped to the U.S. from these countries. With the exception of Oceania—which can be price-competitive without subsidies, the vast bulk of cheese imports now are shipped from countries covered by such agreements.

U.S. dairy trade
(milk equivalent)

Year and quarter	Imports	Exports	Shipments[1]	Net Imports
	Million pounds			
1975				
1st	348	120	117	111
2nd	232	164	146	-78
3rd	368	128	122	118
4th	721	134	111	476
Year[2]	1,669	546	495	628
1976				
1st	421	132	140	149
Apr.-May	229	97	100	32

[1] To U.S. territories. [2] May not add due to rounding.

Commercial Exports Unchanged

Commercial exports of dairy products remained minor thus far in 1976. Exports totaled only 0.2 billion pounds milk equivalent during January-May, about the same as 1975. Although butter and infant food exports were down, dry whole milk exports were higher than a year ago. Commercial

Table 9--Dairy products: U.S. imports, quota and non-quota, total 1975, and January-May, 1975-76 1/

Product	Calendar year quota	1975 imports	May			Cumulative, January-May		
			1975	1976	1976 as a % of 1975	1975	1976	1976 as a % of 1975
	Thou. lb.	Thou. lb.	Thou. lb.	Thou. lb.	Pct.	Thou. lb.	Thou. lb.	Pct.
Cheese, quota types								
American-Cheddar	10,037.5	10,600	9	15	167	1,888	956	51
-Other	6,096.6	6,033	7	56	800	53	699	1,319
Italian-Original loaves	11,500.1	10,173	889	767	86	2,414	4,394	182
-Other	1,494.0	1,232	123	7	6	368	456	124
Edam and Gouda-Natural	9,200.4	(9,207)	(600)	(749)	(125)	(3,019)	(2,646)	(88)
-Processed	3,151.0	( )	( )	( )	( )	( )	( )	( )
Blue Mold	5,017.0	4,564	275	319	116	1,294	1,171	90
Swiss-Emmenthaler, -98¢ *	20,420.0	10,473	1,003	1,197	119	3,560	5,208	146
-Gruyere-process, -98¢ *	11,242.0	6,829	146	315	216	1,240	2,195	177
Other-Over 0.5% fat, -98¢ *	40,730.0	25,832	846	1,328	157	3,131	4,331	138
-Under 0.5% fat	8,901.0	6,667	368	204	55	1,039	1,486	143
Total	127,789.6	91,610	4,266	4,958	116	18,006	23,541	131
Cheese, non-quota types								
Swiss-Emmenthaler, 98¢ + *		36,279	1,883	2,912	155	11,798	16,401	139
-Gruyere-process, 98¢ + *		5,321	134	429	320	1,666	1,964	118
Other, 98¢ + *		26,155	1,584	2,436	154	10,188	11,568	114
Pecorino		17,114	966	633	66	8,304	6,948	84
Roquefort		1,392	66	60	91	501	620	124
Other 2/		1,557	119	166	139	349	614	176
Total		87,818	4,752	6,637	140	32,806	38,115	116
Other quota products								
Butter	707.0	526	47	55	117	149	252	169
Butteroil	1,200.0	1,200	---	---	---	1,200	1,200	100
Butterfat mixtures	2,580.0	1,828	1	267	26,700	2	950	47,500
Ice cream	3,377.3	---	---	---	---	---	---	---
Frozen cream	12,540.0	12,352	---	1,637	---	4,166	8,233	198
Nonfat dry milk	1,807.0	2,465	1	198	19,800	1,053	1,013	96
Dried buttermilk	496.0	783	---	---	---	428	137	32
Evaporated milk	1,312.0	455	4	---	---	418	1	---
Condensed milk	4,079.0	445	32	19	59	243	123	51
Chocolate crumb-Regular	17,000.0	2,323	---	80	---	300	1,743	581
-Lowfat	4,680.0	2,086	---	280	---	---	420	---
Animal feed with milk solids	16,300.0	15,795	1,062	240	23	2,784	3,530	127
Non-quota products								
Casein		58,444	2,498	7,617	305	16,395	40,009	244
Lactose		5,501	224	22	10	4,808	366	8
Milk equivalent, fat solids basis total all products	1,305,620	1,668,680	71,874	118,022	164	499,997	651,083	130

1/ Preliminary. 2/ Gjetost, Bryndza, Gammelost and Noekkelost, and Goya.
*Price break effective April 14, 1976.

Table 10--Dairy products: U.S. imports, 1965-75

Product	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975 1/
						Thousand pounds					
Cheese											
American-Cheddar	1,858	4,178	4,967	9,841	9,606	9,720	9,324	9,516	20,010	106,999	10,600
-Other	14,149	45,991	55,230	5,860	6,034	5,969	7,624	5,957	8,430	5,098	6,033
Total American	16,007	50,169	60,197	15,701	15,640	15,689	16,948	15,473	28,440	112,097	16,633
Italian-Original loaves	7,691	7,776	8,412	8,389	10,547	6,617	6,458	10,802	10,524	8,985	10,773
-Other	97	450	1,494	1,853	1,742	674	852	1,350	1,517	1,185	1,232
Total Italian	7,788	8,226	9,906	10,242	12,289	7,291	7,310	12,152	12,041	10,170	11,405
Edam and Gouda-Natural	N.A.	N.A.	N.A.	8,626	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
-Processed	N.A.	N.A.	N.A.	12,760	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Total Edam and Gouda	7,566	10,899	11,615	21,386	11,457	11,799	10,127	10,146	11,596	9,373	9,207
Blue mold	4,400	5,177	4,787	4,822	4,878	4,766	4,485	4,434	5,994	5,016	4,564
Swiss-Emmenthaler, "pricebreak" and over 2/	6,293	7,656	7,450	7,990	16,322	22,762	21,809	30,366	24,725	51,158	36,279
-Emmenthaler, under "pricebreak"	4,126	7,095	6,905	30,861	3,786	3,592	2,508	3,206	24,875	12,647	10,473
-Gruyere-process, "pricebreak" and over	3,554	4,118	3,558	5,724	9,401	10,800	8,937	9,882	5,703	9,018	5,322
-Gruyere-process, under "pricebreak"	1,760	5,005	6,277	14,253	3,248	3,149	2,662	2,904	9,936	6,285	6,829
Total Swiss	15,733	23,874	24,190	58,828	32,757	40,303	35,916	46,358	65,239	79,108	58,902
Other, "pricebreak" and over	3,715	4,596	5,377	7,820	12,701	22,631	18,812	31,820	21,241	35,853	26,155
Other, under "pricebreak"	5,490	13,472	17,618	31,291	23,541	23,371	14,849	23,680	52,477	35,478	25,832
Other, low-fat	---	---	---	268	8,932	10,752	7,025	8,397	11,965	8,616	6,667
Total Other	9,205	18,068	22,995	39,379	45,174	56,754	40,686	63,897	85,683	79,947	58,654
Pecorino	15,901	15,761	15,750	17,352	19,227	20,621	16,566	22,976	17,215	16,465	17,114
Roquefort	2,191	1,820	1,808	1,948	2,061	2,063	1,671	2,543	2,126	1,439	1,392
Gjetost	253	257	254	330	321	413	397	438	454	473	512
Bryndza	89	86	82	101	127	156	257	322	309	679	400
Cammelost and Noekkelost	178	1,099	195	335	182	256	473	748	698	716	628
Goya	---	---	---	---	---	761	1,039	3	6	41	18
Other products											
Butter	748	667	677	739	678	3/747	628	714	55,574	450	526
Butteroil	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	23,800	1,200	1,200
Butterfat mixtures	3,440	105,626	100,548	1,882	4/2,741	2,398	2,572	2,430	2,565	---	1,828
Frozen cream	12,597	14,957	11,915	12,607	14,748	11,062	11,235	12,600	12,540	12,406	12,353
Evaporated milk	31	611	1,311	4,908	1,313	1,236	1,299	94	1,209	1,214	455
Condensed milk	1,768	2,678	4,079	4,854	4,058	1,506	1,670	2,345	1,419	1,393	445
Chocolate crumb-Regular	2,000	6,500	21,544	45,337	18,603	15,260	12,803	9,652	5,624	5,859	2,323
-Lowfat	---	---	---	---	478	15,944	4,185	3,171	176	---	3,086
Total chocolate crumb	2,000	6,500	21,544	45,337	19,081	31,204	16,988	12,823	5,800	5,859	4,409
Ice cream	---	---	---	---	20,263	62,689	2,549	1,375	---	---	---
Dried products											
Whole milk	---	7	3	7	7	3	10	---	---	17	7
Malted milk	9	1	1	1	---	1	2	6	13	10	---
Buttermilk	78	401	158	536	174	421	355	594	270	137	783
Skim milk	1,378	2,835	924	1,747	1,914	1,759	2,136	1,602	266,564	115,065	2,465
Casein	86,953	107,906	99,670	116,100	116,107	135,288	105,939	105,401	112,828	112,889	58,444
Lactose	---	---	596	374	4,187	4,222	1,652	1,540	1,356	1,310	5,501
Animal feed 5/	---	---	---	---	9,965	27,297	11,812	10,356	15,793	9,009	15,795
						Million pounds					
Milk equivalent, fat solids basis, total all products	923	2,791	2,908	1,780	1,621	1,878	1,356	1,694	3,859	2,923	1,669

1/ Preliminary. 2/ Pricebreak of 47 cents changed to 62 cents on June 3, 1972; to 69 cents on March 15, 1973; to 72 cents on August 29, 1973; to 78 cents on April 1, 1974; to 84 cents on January 16, 1975; to 86 cents on April 9, 1975 ; to 92 cents on October 16, 1975; and to 98 cents on April 14, 1976. 3/ Includes 40,400 pounds not subject to quota. 4/ Excludes 1.7 million pounds in retail packages reported by the Bureau of Customs. 5/ Containing milk products.

dairy exports are not likely to rise substantially since considerably cheaper supplies generally are available elsewhere in the world.

About 29 million pounds of nonfat dry milk was exported during the first 5 months of 1976, down from about 86 million pounds in 1975. In both years, most of these exports were nonfat dry milk from government stocks donated under the Food for Peace program (PL 480). In recent months, some of the nonfat dry milk programmed this spring for donation has started to move out of the country. For all of 1976, nonfat dry milk exports likely will exceed 1975's 113 million pounds.

During January-April, 0.2 billion pounds milk equivalent was shipped to U.S. territories, up somewhat from a year ago. All products except condensed milk shared in the increase. Shipments to U.S. territories are normally of the same magnitude as exports and represent a very small proportion of total milk usage.

World Dairy Summary

Milk production this spring showed substantial increases in most of the major producing countries. Only in the USSR and Australia are downturns clearly indicated. In the European Community (EC), increases are largely attributed to higher yields per cow. Dry conditions have begun to hold production increases below the very large increases which occurred in many EC countries during the first quarter of this year. Production in Canada continued to increase sharply, while the weather and policy decisions are contributing to the continued downtrend in Australian milk output. Milk production in New Zealand appears to be fully recovered from the drought levels of 1973-75 and output is expanding.

Cheese production continues above year-earlier levels in many of the important dairy countries, although efforts are being made to limit production in some European countries. Cheese production in France remained near year-earlier levels while it was reportedly down in the Netherlands. In contrast, cheese production was up sharply in the United Kingdom, Canada, and Oceania. While cheese stocks in most major producing countries have remained relatively stable since the first of the year, they ranged slightly higher than a year earlier with substantial increases occurring in the United Kingdom and Oceania. Canadian stocks were slightly lower than a year ago.

Butter production in the EC, thus far in 1976, was up sharply from 1975. This was also the case in other European countries, Canada, and New Zealand, while Australian production, though small, was down substantially as a result of declining milk production and increased cheese manufacturing. With the increased production and sluggish consumption, stocks have begun to increase sharply in the EC and Canada. Conversely, butter stocks were reportedly below year-earlier levels in Oceania.

Nonfat dry milk production continued to rise thus far in 1976 in most major producing countries, although the rate of increase may be slowing in the EC and possibly Canada. Nonfat dry milk production in Oceania remained below-year earlier levels. The declines in New Zealand may have been a result of the intended diversion of skim milk to casein production. Heavy stocks persist in most major producing countries as difficulties are encountered in finding export markets.

Table 11--U.S. Dairy Situation at a Glance

Item	Unit or base period	1974	1975					1976		
		May	March	April	May	June	Year	March	April	May
Production and cow numbers:										
Total milk	Mil. lb.	10,865	10,021	10,121	10,818	10,435	115,458	10,250	10,450	11,184
Milk per cow	Lb.	969	896	905	968	936	10,354	926	944	1,011
Number of milk cows	Thou.	11,216	11,189	11,186	11,172	11,153	11,151	11,072	11,072	11,061
Prices received by farmers:										
All milk, sold to plants, 100 pounds	Dol.	8.26	8.18	8.14	8.03	7.97	8.71	9.72	9.37	9.23
Percentage of parity 1/	Pct.	87	75	76	76	75	77	80	78	80
Manufacturing grade milk, 100 pounds	Dol.	6.87	7.02	7.07	7.07	7.10	7.62	8.53	8.50	8.31
Parity equivalent	Dol.	8.38	9.14	9.31	9.39	9.47	9.44	10.16	10.25	10.08
Fat content	Pct.	3.59	3.69	3.66	3.61	3.56	3.67	3.66	3.62	3.58
Minnesota-Wisconsin (3.5% fat), 100 pounds	Dol.	6.93	6.86	6.94	7.02	7.11	7.62	8.60	8.44	8.30
Milk eligible for fluid market, 100 pounds	Dol.	8.68	8.50	8.45	8.32	8.24	9.00	10.00	9.62	9.50
Price ratios and dairy ration values:										
Milk-feed	Lb.	1.45	1.33	1.30	1.30	1.30	1.39	1.64	1.60	1.51
Manufacturing grade milk-hog	Lb.	.26	.18	.18	.16	.15	.16	.19	.18	.17
Manufacturing grade milk-beef cattle	Lb.	.19	.25	.22	.19	.18	.24	.25	.22	.23
Value of concentrate ration fed milk cows	Dol.	5.70	6.17	6.25	6.20	6.14	6.25	5.91	5.87	6.11
Farm cash receipts from dairy products	Mil. dol.	885	807	811	856	822	9,866	987	965	1,011
Production of factory products:										
Creamery butter	Mil. lb.	102.2	97.4	102.7	101.6	88.0	980.5	89.3	87.6	94.0
American cheese, whole milk	Mil. lb.	191.5	143.1	151.5	170.3	169.4	1,654.5	165.8	187.2	204.1
Cheese, other than American	Mil. lb.	91.2	97.5	92.9	100.7	105.6	1,156.7	109.1	109.8	109.5
Canned milk, unskimmed	Mil. lb.	108.6	75.9	80.2	98.3	99.4	953.8	86.6	94.9	89.5
Dry whole milk	Mil. lb.	8.4	3.2	4.0	7.1	8.2	63.1	6.5	7.4	9.8
Frozen products 2/	Mil. gal.	104.6	93.4	97.7	112.7	123.8	1,176.0	102.0	99.9	100.6
Creamed cottage cheese	Mil. lb.	77.6	74.7	75.6	79.0	76.8	861.7	82.7	78.5	77.6
Total whole milk equivalent 3/	Mil. lb.	6,101	5,245	5,508	5,988	5,904	59,219	5,495	5,714	6,067
Nonfat dry milk, human use	Mil. lb.	125.7	98.2	107.7	126.3	121.9	994.0	78.4	87.6	104.9
Wholesale prices:										
Butter, 92-score, Chicago, pound	Ct.	60.5	68.1	69.2	69.2	69.2	79.4	86.0	89.5	89.9
Cheese, American (40-pound blocks), f.o.b. Wisconsin assembling points, pound	Ct.	77.9	77.4	78.8	80.6	82.4	86.6	94.4	96.9	94.9
Evaporated milk, case (mid-point of range)	Dol.	11.93	12.08	12.08	12.08	11.98	12.27	13.78	13.78	13.54
Dry whole milk, pound	Ct.	67.2	63.8	64.1	65.0	65.9	71.0	78.5	78.6	77.9
Nonfat dry milk, pound	Ct.	62.1	61.0	60.7	60.5	60.7	63.3	63.5	63.1	62.8
Dairy products and ice cream index (BLS)	1967=100	146.9	148.6	148.9	149.6	150.5	155.8	166.7	167.7	167.1
Retail prices (BLS):										
Milk, fresh, grocery, half-gallon	Ct.	80.4	78.9	78.5	77.4	77.2	78.5	82.8	82.6	82.0
Evaporated milk, 14½-ounce can	Ct.	28.6	30.6	30.5	30.4	30.4	30.8	34.0	34.1	34.1
Cheese, American, processed, sliced, ½-pound package	Ct.	75.7	73.7	73.8	74.2	74.3	76.8	85.6	84.9	85.7
Butter, pound	Ct.	94.1	95.2	95.4	95.3	95.7	102.5	117.8	119.8	120.6
Ice cream, half-gallon	Ct.	105.2	123.0	122.0	121.5	121.3	122.3	125.6	125.8	125.3
Dairy products index	1967=100	154.6	155.4	154.8	153.6	153.3	156.6	167.9	167.9	167.4
All foods index	1967=100	159.7	171.3	171.2	171.8	174.4	175.4	178.7	179.2	179.9
Margarine, colored, pound	Ct.	53.8	69.7	67.4	63.4	60.4	62.9	53.5	51.7	51.6
Stocks, end of month:										
Creamery butter	Mil. lb.	97.4	60.5	66.7	85.1	99.6	---	31.2	44.5	67.1
Cheese, total 4/	Mil. lb.	533.4	448.2	441.5	453.2	478.5	---	371.1	393.1	433.2
Canned milk, unskimmed	Mil. lb.	110.1	54.3	60.3	84.2	104.1	---	57.4	76.8	104.4
Dry whole milk	Mil. lb.	11.0	6.0	5.0	7.5	7.1	---	7.4	9.1	10.4
Total whole milk equivalent 5/	Mil. lb.	7,354	5,646	5,715	6,277	6,859	---	4,306	4,850	5,779
Nonfat dry milk	Mil. lb.	148.0	334.9	328.4	382.7	441.3	---	475.6	442.0	463.6
Commercial disappearance:										
Creamery butter	Mil. lb.	78.4	91.4	84.9	77.8	76.6	947.7	75.3	74.2	72.2
Cheese, American	Mil. lb.	155.2	139.0	146.3	150.0	145.9	1,717.0	159.0	165.3	163.3
Cheese, other than American	Mil. lb.	100.3	109.7	103.2	108.6	112.7	1,331.8	120.6	121.0	120.6
Canned milk, unskimmed	Mil. lb.	70.4	80.8	72.5	72.5	77.3	950.8	76.0	72.0	60.3
Milk in all products	Mil. lb.	9,736	9,705	9,507	9,847	9,719	113,714	9,782	9,734	10,105
Nonfat dry milk	Mil. lb.	61.7	43.5	41.4	41.7	45.2	689.5	66.8	63.8	66.0
USDA net removals:										
Butter	Mil. lb.	8.3	13.7	14.6	21.8	8.1	63.4	---	.4	---
Cheddar cheese	Mil. lb.	.7	13.1	10.9	10.6	6.8	68.2	---	.5	1.1
Nonfat dry milk	Mil. lb.	9.4	54.0	72.5	73.9	84.2	394.5	5.9	5.6	16.0
Evaporated milk	Mil. lb.	5.2	2.6	1.8	1.9	2.3	24.5	2.2	3.5	1.7
Total whole milk equivalent	Mil. lb.	190	418	412	559	240	2,036	5	20	15
Fluid sales, change from year earlier: 6/										
Whole milk	Pct.	-8.4	-1.5	+.2	-1.4	-0.2	-1.0	-.8	-3.0	
Cream and cream mixtures	Pct.	-.1	+9.7	+.2	+4.7	+11.2	+5.1	+4.2	+8.3	
Low-fat and skim milk	Pct.	+5.3	+9.8	+13.1	+10.0	+10.1	+9.9	+9.5	+6.2	
Total	Pct.	-4.6	+2.0	+4.0	+2.1	+2.9	+2.4	+2.5	+.1	

1/ Seasonally adjusted price as percentage of parity price.
2/ Ice cream, ice milk, and sherbet.
3/ Includes manufactured products for which current monthly series are available.
4/ Natural, plus process American cheese held by CCC.
5/ Excludes cream and bulk condensed milk.
6/ Daily average sales in Federal and State Marketing areas.

COSTS OF PRODUCING MILK IN THE UNITED STATES, 1974[1]

by
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ABSTRACT: A survey of nearly 1,600 dairy farmers in 24 major milk producing areas showed that total costs in 1974, excluding all land allocations, of producing milk averaged $8.06 per cwt. with homegrown feed valued at cost of production. This compares with $8.93 when homegrown feed is valued at average prices received by farmers. Including land allocations, with the owner-operated portion of total land operated valued at its (1) current value for agricultural uses or (2) average acquisition value, adds $.99 or $0.52 to production costs. Total direct costs averaged $6.74 per cwt. with homegrown feed valued at cost of production. Feed and labor costs accounted for about 71 percent of the total. This compares with an average of milk prices as reported by the farmers interviewed of $8.39 per cwt.

KEYWORDS: Milk, production costs, land allocation, feed, labor.

INTRODUCTION

The need for current and consistent information on the costs of producing major agricultural commodities has increased in recent years partly because of rapid increases and fluctuations in prices of inputs used by farmers. Thus, the Agriculture and Consumer Protection Act of 1973 directed the Secretary of Agriculture to annually, beginning with 1974, estimate the costs of producing certain major commodities, including milk. In response, the Economic Research Service conducted a survey in early 1975 of nearly 1,600 dairy farmers in 24 major milk producing areas (figure 11) to obtain information for estimating the average cost of producing milk in 1974. Information obtained from farmers included quantities and costs of all purchased inputs; livestock mix and land use; detailed livestock and cropping practices, including specification of buildings, machinery, and equipment complements used in 1974; quantity and type of labor hired, with wages paid; land rental arrangements and payments; milk hauling and marketing costs; general farm overhead expenses, like taxes, insurance, and utilities; farmer's estimate of the value of cropland for agricultural uses; inventory and valuation of all farm assets; and a detailed accounting of revenues from the sales of crops and livestock and livestock products.

Several estimates of average total costs per cow milked and per cwt. of milk produced were computed, based on different methods of valuing homegrown feeds and land. Two methods were used to value homegrown feeds fed to dairy livestock: (1) at the cost of producing the feed and (2) at average prices received by all farmers. Two methods were used to value owner-operated land: (1) current value for agricultural uses and (2) estimated average acquisition value. All average total cost estimates include four major cost components—total direct costs, general farm overhead expenses, a management charge, and a land allocation. Direct costs (variable and fixed) are those directly associated with the dairy and relevant feed crop enterprises, and include the costs of purchasing or producing feed; veterinary and artificial insemination expenses; fuels and lubricants; labor,

[1]Based on "Costs of Producing Milk in the United States—1974," June, 1976, as prepared by the Economic Research Service, USDA, for the Committee on Agriculture and Forestry, U.S. Senate.

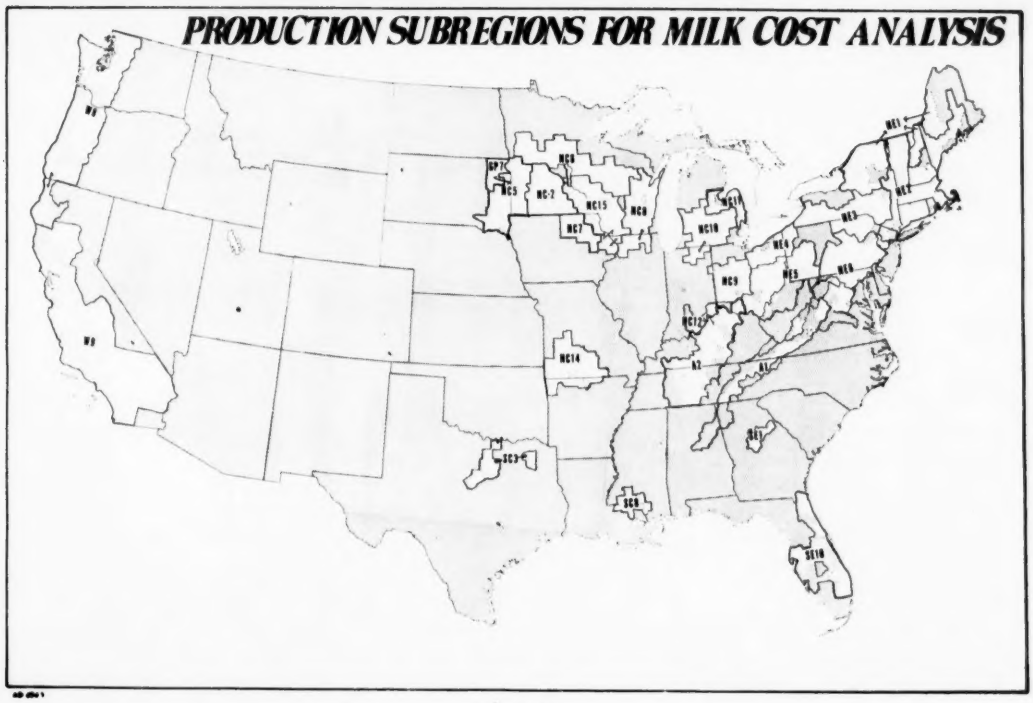

Figure 11

including all unpaid farm operator and family labor; and interest and replacement costs for machinery, power, buildings, breeding stock, and milking equipment. Overhead, which includes personal property taxes, insurance payments, etc., was allocated to the dairy enterprise on the basis of its proportionate share of the total value of farm product sales. The management cost was either the actual amount paid for management as reported by farmers or an imputed charge of 7 percent of the total value of dairy products. Two different land allocations were computed: (1) as a weighted composite of the respective acreage actually share rented, cash rented, or owned by the operator, with the owner-operated portion based on the current value of cropland for agricultural purposes as estimated by farmers times the appropriate Federal Land Bank interest rate and (2) the same as (1) except that the average value of the land at the time acquired instead of the current agricultural value was used to compute the owner-operated portion. Real estate taxes were included as a part of the owner-operated land allocation in both cases. The land used for growing feed crops was charged to the dairy enterprise indirectly when valuing the homegrown feeds at their costs of production. The land use charge portion of "price received" was assumed to be the same as that computed for the "cost of production" (table 12). This has been deducted from feed costs and appears separately under "land allocation for homegrown feed acreage" in both places.

SURVEY RESULTS

National Highlights

Production costs per cwt. of milk varied among the 24 areas (subregions) studied, primarily reflecting differences in milk output per cow and land values. The survey average of 10,930 pounds of milk produced per cow on the farm was about 630 pounds higher than the U.S. average (excluding Alaska and Hawaii) in 1974. Production varied from about 8,500 pounds in subregion SC-3 to over 13,000 pounds in W-9. The cost variation among subregions was less than that indicated by the differences in milk output per cow and land values considered independently. Areas with high output per cow tend to be areas with high land costs while low output areas tend to be areas with low land costs. Weather also is an important factor in some years, as its effects on crop production usually influences feeding rates and the mix of feeds and, consequently, milk output per cow. No indication

Table 12--Milk production costs per cow and per hundredweight, by cost item, 1974, all subregions

Cost item	Feed at cost of production 1/		Feed at price received by farmers 1/	
	Cost per cow milked	Cost per hundredweight of milk 2/	Cost per cow milked	Cost per hundredweight of milk 2/
	Dollars			
Labor	178.87	1.23	178.87	1.23
Hired	28.03	0.19	28.03	0.19
Unpaid family	150.84	1.04	150.84	1.04
Feed	516.51	3.57	640.21	4.42
Grains	101.18	0.70	145.68	1.01
Commercial	237.87	1.64	237.87	1.64
Forages	159.21	1.10	238.41	1.64
Other	18.25	0.13	18.25	0.13
Other costs	108.80	0.75	108.80	0.75
Hauling	35.20	0.24	35.20	0.24
Marketing costs	8.65	0.06	8.65	0.06
Other fees	2.57	0.02	2.57	0.02
Artificial insemination	8.27	0.06	8.27	0.06
Veterinary & medicine	14.46	0.10	14.46	0.10
Other expenses	39.65	0.27	39.65	0.27
Buildings & equipment	65.74	0.45	65.74	0.45
Repairs	17.67	0.12	17.67	0.12
Interest	48.07	0.33	48.07	0.33
Interest & depreciation on livestock investment	95.69	0.66	95.69	0.66
Interest on operating capital	12.02	0.08	13.94	0.10
TOTAL DIRECT COSTS	977.63	6.74	1,103.25	7.61
Management 3/	81.96	0.56	81.96	0.56
Overhead: total	110.83	0.76	110.83	0.76
dairy	(79.59)	(0.55)	(79.59)	(0.55)
TOTAL EXCLUDING LAND	1,170.42	8.06	1,296.04	8.93
Land allocation, composite:				
Current land value total 4/	143.82	0.99	143.82	0.99
Homegrown feed acreage	131.63	0.91	131.63	0.91
Dairy farm lots	12.19	0.08	12.19	0.08
Average acquisition value total 5/	75.06	0.52	75.06	0.52
Homegrown feed acreage	70.24	0.49	70.24	0.49
Dairy farm lots	4.82	0.03	4.82	0.03

1/ Feed at cost of production includes homegrown feeds valued at cost of production as computed for each farm. All purchased feeds were included at cost. Where the feed was produced on the farm but detailed costs were not obtained, the average cost of production for the subregion was used. The overhead and land allocation charges were not included in "feed". They are included in the "overhead" and "land allocation" items. Feed at price received by farmers included homegrown feed at the reported State average prices recieved by farmers in 1974 as reported by the Statistical Reporting Service. (Agricultural Prices, Annual Summary 1974, PR 1-3 (75), June 1975.)

2/ Hundredweight of milk represents all milk sold, consumed on the farm, and the milk equivalent of all dairy cattle and calves sold. Milk equivalent is estimated by dividing the total dollar sales of dairy cattle and calves by the milk price per cwt received by the farmer.

3/ The management charge is computed as 7 percent of the gross value of dairy product sales. No management charge was made for homegrown feed.

4/ The land allocation is a weighted composite computed with owned land at the farmer's estimate of the current value for agricultural purposes times the Federal Land Bank interest rate and rented land at the actual net share rent and/or cash rent paid. Homegrown feed acreage represents the cost of land utilized in feed crop production, including pasture. Dairy lots represent the cost of land in the farmstead used for housing and for exercising.

5/ The details in footnote (4) above apply, with the exception that owned land was valued at the average acquisition value.

was given by the farmers interviewed that any one subregion suffered general or particular crop failure. Yields of the principal feed crops on survey farms appeared to be average or above average in each subregion for 1974. However, yields on the survey farms probably were lower than in 1973, as indicated by published SRS data for all farms in individual States and districts within States.

Direct Costs

Direct costs per cwt. of milk produced averaged $6.74 with homegrown feed valued at cost of production (table 12). With homegrown feed valued at the average prices received by farmers, direct costs were $7.61, or $0.87 per cwt. higher. Total feed costs at cost of production were $3.57 or 53.0 percent of total direct costs, followed by $1.23 for labor, $0.75 for related miscellaneous expenses, $0.74 for interest and depreciation on the value of livestock and interest on operating capital, and $0.45 for repairs and interest on dairy enterprise buildings and equipment. Only 15 percent of dairy enterprise labor costs represents hired labor, with the balance being the imputed cost of the farm operator's and other family labor. The unpaid portion of the labor costs represents a sizable cost that does not have to be covered in the short run. Thus, the dairymen who hire only a small amount of labor have at least a short-run cash flow advantage.

Many dairy farmers produced milk at direct costs below the average of $6.74, and, for the subregions studied, nearly 83 percent of the dairy farmers and 84 percent of milk production were associated with total direct costs below the average milk price received of $8.39 per cwt. (table 13).[2]

Total Costs

Total costs of milk production vary with the cost concepts and costing procedures. Costs, excluding all land allocations, averaged $8.06 per cwt. of milk produced with homegrown feed valued at cost of production. This compares with $8.93 when homegrown feed is valued at average prices received by farmers. In both cases, costs include overhead allocations and a management charge. Including land allocations adds $0.52 or $0.99 to production costs, yielding total costs of $8.58 or $9.05 per cwt. of

[2]The weighted average of gross milk prices received as reported by the farmers interviewed, before deductions for local hauling and marketing services, compares with the U.S. (excluding Alaska and Hawaii) average of $8.32 for all milk sold wholesale to plants and dealers.

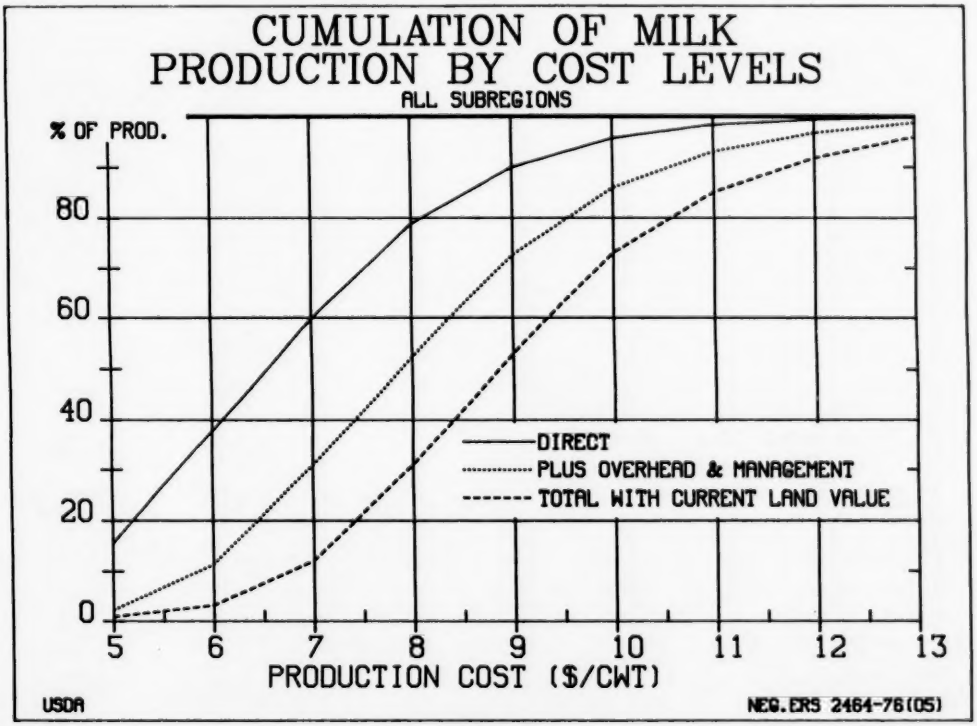

Figure 12

Table 13--Distribution of milk production by cost levels, 1974, all subregions

Cost per hundredweight of milk	Direct costs	Direct and overhead costs	Direct, overhead and management costs	Direct, overhead, management, and land costs	
				Composite current value	Composite acquisition value
	Percent				
Feed valued at cost of production:					
Less than $ 5.00 per cwt.	15.5	6.2	2.2	0.9	1.1
Less than $ 6.00 per cwt.	37.7	20.6	11.4	3.2	5.3
Less than $ 7.00 per cwt.	59.7	43.5	30.9	12.1	18.9
Less than $ 8.00 per cwt.	78.8	64.7	52.4	31.0	41.8
Less than $ 9.00 per cwt.	89.9	82.0	72.7	53.0	62.8
Less than $10.00 per cwt.	95.7	90.8	86.0	73.1	80.5
Less than $11.00 per cwt.	98.4	95.6	93.1	85.1	89.9
Less than $12.00 per cwt.	99.4	98.1	96.8	91.8	95.1
Less than $13.00 per cwt.	99.8	99.3	98.8	96.0	97.8
Feed valued at price received:					
Less than $ 5.00 per cwt.	1.8	1.0	0.4	0.3	0.4
Less than $ 6.00 per cwt.	5.9	2.8	1.9	1.9	1.9
Less than $ 7.00 per cwt.	16.3	9.8	5.5	5.3	5.5
Less than $ 8.00 per cwt.	36.7	24.5	14.8	14.0	14.3
Less than $ 9.00 per cwt.	61.3	49.2	35.4	33.6	34.4
Less than $10.00 per cwt.	78.8	69.3	57.7	56.4	57.4
Less than $11.00 per cwt.	88.7	83.9	76.2	75.2	75.9
Less than $12.00 per cwt.	94.5	90.9	87.2	85.9	86.6
Less than $13.00 per cwt.	96.9	95.5	93.8	93.2	93.7

Table 14--Average prices received and production costs per cwt. of milk, by subregion and all subregions, 1974

Subregion	Average milk prices received 1/	Feed at cost of production				Feed at price received by farmers				Land costs	
		Direct costs	Overhead	Management	Total excluding land	Direct	Over-head costs	Management	Total excluding land	Composite current value 2/	Composite acquisition value 3/
NE-1	8.47	6.70	.72	.59	8.01	7.59	.72	.59	8.90	.67	.32
NE-2	8.99	7.32	.78	.63	8.73	7.92	.78	.63	9.33	.61	.31
NE-3	8.50	6.77	.89	.59	8.25	7.71	.89	.59	9.19	.59	.29
NE-4	8.72	6.72	.68	.61	8.01	7.78	.68	.61	9.07	.94	.47
NE-5	8.63	7.24	.83	.60	8.67	8.80	.83	.60	10.23	.87	.48
NE-6	8.73	6.88	.78	.60	8.26	8.22	.78	.60	9.60	1.02	.52
A-1	8.77	7.64	.68	.61	8.93	8.11	.68	.61	9.40	.96	.38
A-2 & NC-12	8.57	7.30	.65	.60	8.55	7.91	.65	.60	9.16	1.55	.81
SE-1	9.72	7.66	.43	.69	8.78	7.80	.43	.69	8.92	.51	.19
SE-10	10.91	9.23	.66	.42	10.31	9.24	.66	.42	10.32	.04	.01
SC-3	8.38	8.73	.56	.58	9.87	8.80	.56	.58	9.94	.30	.14
SC-8	8.87	8.58	.57	.62	9.77	8.73	.57	.62	9.92	1.14	.42
NC-14	7.97	7.38	.58	.56	8.52	7.53	.58	.56	8.67	.59	.25
NC-9	8.65	6.12	.74	.60	7.46	7.03	.74	.60	8.37	1.43	.77
NC-10	8.65	7.02	.86	.61	8.49	8.24	.86	.61	9.71	1.39	.76
NC-11	8.43	7.41	.69	.59	8.69	8.56	.69	.59	9.84	1.31	.75
NC-8	7.92	6.39	.85	.54	7.78	7.44	.85	.54	8.83	1.35	.72
NC-15	7.81	5.59	.78	.55	6.92	6.73	.78	.55	8.06	1.25	.63
NC-6	7.69	6.26	.95	.54	7.75	7.28	.95	.54	8.77	.99	.50
NC-7	7.45	6.46	.60	.52	7.58	6.91	.60	.52	8.03	1.98	.99
NC-2	7.45	5.54	.92	.51	6.97	6.43	.92	.51	7.86	1.50	.83
NC-5 & GP-7	7.41	5.99	.81	.52	7.32	6.41	.81	.52	7.74	1.27	.73
W-8	8.20	7.09	.61	.56	8.26	7.38	.61	.56	8.55	1.23	.69
W-9	8.37	7.65	.51	.52	8.68	8.11	.51	.52	9.14	.34	.24
All subregions	8.39	6.74	.76	.56	8.06	7.61	.76	.56	8.93	.99	.52

1/ The weighted average of gross milk prices, before deductions for local hauling and marketing services, reported by farmers.
2/ Based on prevailing tenure arrangements on each farm, reflecting actual combinations of cash rent, net share rent and owner-operated land allocations. Owned land is priced at current value for agricultural purposes.
3/ The details in footnote (2) above apply, except that owned land is priced at the average acquisition value for agricultural purposes.

milk with homegrown feed valued at cost of production.

The cumulative distributions of milk production by cost level for selected costs are presented in table 13 and illustrated in figure 12. When all costs of production are considered (feed valued at cost of production), about 40 percent of the milk was produced for less than the average price received with land at current value. It should be stressed that, along with land costs, there normally are sizable capital gains, or potential income, from increases in the value of land that are not reflected in this study. The national average current market value of land rose 14.2 percent between March 1974 and March 1975 (25.5 percent between March 1973 and March 1974).

Subregional Highlights

A summary of selected costs for the 24 areas studied is presented in table 14. Total direct costs per cwt. varied widely among subregions, largely because of the variation in feed costs. These costs tend to be lowest in areas where most of the feed is homegrown, particularly the North Central (NC) subregions, and highest where most of the feed is purchased (SE-10, SC-3, SC-8). Labor costs were fairly uniform among the subregions, despite wide differences in milking systems, quality of labor used, and labor wages paid. Labor and feed costs combined accounted for at least two-thirds of total direct costs. Total costs per cwt., excluding land allocations, varied considerably, paralleling the variation in direct costs, and ranged from $6.92 in NC-15 to $10.31 in SE-10 with homegrown feed valued at cost of production. Including land allocations adds from $0.04 (SE-10) to $1.98 (NC-7) per cwt. to production costs.

Detailed information on subregional costs and on the sampling, cost concepts, and costing procedures used in this study is contained in Committee Print No. 72-184, Senate Committee on Agriculture and Forestry. Copies are available upon request from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, Stock No. 052-070-03491-2, for $0.95.

WHEY SUPPLY AND UTILIZATION

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ABSTRACT: The supply of whey has increased rapidly in recent years due to the growth of the cheese industry. These supply trends are examined along with the current utilization of whey products and some of the problems involved. Price trends for dry whey, price comparisons with nonfat dry milk, and some reasons behind the price movements are reported.

KEYWORDS: Whey, production, disposition, cheese

The growth of the cheese industry, increased environmental concerns, and periodic high prices for alternative protein sources have focused attention on whey supply and utilization. Liquid whey is a valuable food source containing about 6.7 percent high quality solids. However, large amounts of whey are still underutilized.

Liquid whey is often dried for final utilization. Since increasing amounts of dry whey products are substituted for nonfat dry milk in many final food and feed products, the two commodities are strongly parallel.

Whey Supply

An estimated 29.5 billion pounds of liquid whey were produced in 1975, with 23.9 billion pounds of sweet whey coming from "hard" cheese and 5.6 billion pounds of acid whey coming from cottage and cream cheeses (table 15). This was equivalent to a total of about 2.0 billion pounds of whey solids.

The supply of whey is growing. From 1970 through 1975, whey production increased over 20 percent. If this trend continues, whey production would reach 36 billion pounds by 1980.

Increased amounts of liquid whey are dried, condensed, or used to produce lactose. In 1975, 766 million pounds of dry whey were produced, about 64 percent of this for human food and the rest for animal feed. For the first time in 1975, the total whey data were divided into dry whey, partially delactosed, partially demineralized, and partially delactosed/demineralized. Therefore, the 1975 dry whey production numbers are not strictly comparable to earlier years.

Only a small amount of dry whey production is from cottage cheese. Cottage cheese plants are generally too small to produce enough whey for economical drying. Also acid whey does not withstand heating as well as sweet whey and dry acid whey has relatively less utility value as an input into food products.

Whey drying requires a lot of energy since liquid whey is about 93-94 percent water. Therefore, whey processors condense the whey down to 40-50 percent solids content with the exception of a few small cheese plants which dry the liquid whey directly.

Condensed whey production reported for 1975 was 87.8 million pounds (solids content). This includes only whey that was condensed as a final marketable product and does not include the quantity used at the plant or shipped to another plant for further processing into dry whey or modified whey products. Lactose production for 1975 was 136 million pounds.

The total whey solids equivalent of the dry whey products, condensed whey, lactose, and wet blends was 1,153 million pounds, 58 percent of total whey solids available.

The proportion of whey that is dried varies by State (table 16). Factors tending to increase the amount of whey dried within a State include the presence of large cheese plants that produce enough whey to economically do their own drying and a heavy concentration of cheese produc-

Table 15--Estimated liquid cheese whey production and utilization, 1970-75 1/

Item	1970	1971	1972	1973	1974	1975
	Mil. lbs.					
Production:						
Cheese 2/	2,075	2,244	2,471	2,546	2,787	2,651
Liquid sweet whey 3/	18,675	20,196	22,239	22,914	25,083	23,859
Whey solids 4/	1,270	1,373	1,512	1,558	1,706	1,622
Cottage and cream cheeses 5/	940	984	1,007	992	916	937
Liquid acid whey 6/	5,640	5,904	6,042	5,952	5,496	5,622
Whey solids 4/	367	384	393	387	357	365
Total liquid whey	24,315	26,100	28,281	28,366	30,579	29,481
Total whey solids	1,637	1,757	1,905	1,945	2,063	1,987
Utilization:						
Dry whey for human food 7/	293.9	319.0	376.7	383.6	452.6	488.1
Dry whey for animal feed 7/	327.2	360.4	385.4	388.9	398.7	277.8
Condensed whey 8/	225.1	286.9	175.3	173.7	152.3	219.6
Lactose	97.6	85.2	87.3	113.2	130.8	136.3
Whey solids in wet blends 9/	--	--	--	--	--	81.3
Total whey solids 10/	867.3	930.5	971.9	1,023.1	1,121.5	1,153.1
	Percent					
Percent total whey solids utilized	53.0	53.0	51.0	52.6	54.4	58.0

1/ Source of cheese and whey products production: Dairy Products, Annual Summary, Stat. Rptg. Ser., USDA.
2/ Excludes cottage, cream, and Neufchatel cheeses.
3/ Estimated at 9 pounds per pound of cheese.
4/ Estimated total solids content of whey: 6.8 percent for sweet and 6.5 percent for acid.
5/ Adjusted for duplication between curd and creamed cottage cheese; includes cream and Neufchatel cheeses.
6/ Estimated at 6 pounds per pound of cheese.
7/ Totals for 1975 include dry whey, partially delactosed, partially demineralized, and partially delactosed/demineralized.
8/ For final use in human food or animal feed.
9/ Not reported before 1975.
10/ Estimated total solids content of condensed whey at 40 percent; 1.6 pounds of whey solids per pound of lactose.

Table 16--Liquid and dry whey production, selected States, 1975 1/

State	Liquid whey 2/		Dry whey 3/			
	Production	Proportion of U.S. production	Production	Proportion of U.S. production	Liquid whey equivalent 4/	Proportion used for dry whey
	Thou. lbs.	Percent	Thou. lbs.	Percent	Thou. lbs.	Percent
California	1,488,741	5.1	9,158	1.5	130,502	8.8
Illinois	1,004,691	3.4	22,404	3.8	319,257	31.8
Iowa	1,388,736	4.7	87,065	14.6	1,240,676	89.3
Kansas	370,554	1.3	9,083	1.5	129,433	34.9
Kentucky	508,572	1.7	20,369	3.4	290,258	57.1
Minnesota	2,930,823	9.9	79,476	13.4	1,132,533	38.6
Missouri	730,182	2.5	23,062	3.9	328,634	45.0
Nebraska	581,835	2.0	7,471	1.3	106,462	18.3
New York	2,619,468	8.9	33,063	5.6	471,148	18.0
North Dakota	424,692	1.4	5,650	1.0	80,513	19.0
Tennessee	329,529	1.1	11,548	1.9	164,559	49.9
Utah	551,952	1.9	20,552	3.5	292,866	53.1
Wisconsin	10,075,974	34.2	196,556	33.1	2,800,932	27.8
Subtotal 5/	23,005,749	78.0	525,457	88.4	7,487,762	32.6
Total U.S.	29,481,484	100.0	594,652	100.0	8,473,791	28.7

1/ Source: Dairy Products, Annual Summary, Stat. Rptg. Ser., U.S. Dept. Agr.
2/ Calculated from cheese production.
3/ Excludes modified dry whey products.
4/ Estimated at 14.25 pounds of liquid whey per pounds of dry whey.
5/ May not add due to rounding.

Table 17--Wholesale prices of dry whey and nonfat dry milk, by year, 1970-75 1/

	Dry whey, spray, feed 2/	Dry whey, spray, food 2/	Nonfat dry milk, spray, food 3/	Dry whey for food as a % of nonfat dry milk
	Cents per pound			Percent
1970 4/	5.59	6.66	26.31	25.3
1971	4.84	6.55	30.74	21.3
1972	5.63	7.17	33.06	21.7
1973	7.65	9.49	46.38	20.5
1974	9.41	12.91	58.62	22.0
1975	6.02	7.55	63.32	11.9

1/ Sources: Dairy Products Report, Stat. Rptg. Ser., U.S. Dept. Agr., Wisconsin Dairy and Poultry Market News Report.
2/ Central States production area.
3/ Manufacturers' average selling prices.
4/ June-December average for dry whey.

tion—allowing smaller plants to ship liquid or condensed to cooperative drying facilities. Another factor encouraging whey drying is a lack of alternative methods of whey disposition, such as city sewer systems or acceptable fields for spreading the liquid whey. Factors decreasing whey drying include a large proportion of acid whey, the proximity of sizable markets for concentrated whey, and the proportion of older cheese plants.

Dry Whey Price

The price for dry whey, both for feed and food use, fluctuated during 1970-75 (table 17). Prices generally moved higher through 1974 to 9.4 cents per pound for feed and 12.9 cents per pound for food. Prices fell in 1975 due to heavy stocks and weak demand.

In contrast, nonfat dry milk prices rose throughout the period to a high of 63.3 cents per pound in 1975. Edible dry whey prices were generally around 22 percent of nonfat dry milk prices until 1975 when they fell to 12 percent.

Factors influencing whey product prices include the following:

—Whey is a byproduct of cheese. In response to an increase in demand, cheese production has increased significantly in recent years. This has brought about a related increase in whey production, although the demand for whey products has not increased at the same rate. In addition, pollution restrictions have resulted in an increased proportion of the liquid whey being dried. These factors have resulted in a downward pressure on whey product prices.

—Dry whey is a substitute for nonfat dry milk in many food and feed products. However, nonfat dry milk is subject to support prices while dry whey prices largely reflect market forces. Rising nonfat dry milk prices tend to raise dry whey prices.

—The discovery of new uses for whey products has tended to increase demand which helps to bolster whey prices.

Cheese Plant Disposition of Whey[1]

Whey production per cheese plant has increased dramatically in recent years as the number of cheese plants has declined and the production of cheese has increased. From 1970 through 1975, sweet whey production per plant increased from 20.0 million pounds to 29.3 million pounds, an increase of almost 50 percent. The greater concentration of whey may increase the feasibility for some cheese plants to process whey.

A survey was made in 1973 of current liquid whey disposition methods used by cheese plants (table 18).[2] This survey covered 225 plants representing almost 60 percent of total cheese production in 1973. These plants were weighted by their cheese output to compute the relative importance of whey disposition methods.

The survey examined the disposition of liquid whey by the plants and not the final use for the whey. As a result, large amounts of condensed whey were reported were shipped to another location for final use such as drying, food or feed, or other use.

The results indicate almost 54 percent of the sweet whey from hard cheese plants was condensed, dried, or modified by the plant. Twenty-two percent was sold for further processing in liquid form and the rest, almost 25 percent, was fed to livestock or dumped.

There was a significant difference in the uses of whey among cheese plants of different sizes. Small plants, producing less than 2 million pounds of cheese annually, fed or dumped almost 65 percent of their liquid whey compared to less than 7 percent for large plants, producing 10 million pounds or more. Large plants dried 38 percent of their whey while small plants dried about 6 percent. The proportion of liquid whey sold for further processing declined as plant size increased.

Final Whey Products Disposition

The results of a survey conducted by the whey products institute indicate bakery and dairy were the most important uses for dry whey in 1975, accounting for a total of 62 percent of the dry sweet whey and 75 percent of the dry acid whey (table 19). For dry sweet whey, 85 percent of the total sales going directly to dairies was for frozen products.

The most important uses for modified sweet whey products were infant foods, dairy uses, and prepared dry mixes. Modified acid whey products were heavily used in bakeries, accounting for 94 percent of the total.

The uses for condensed sweet whey were generally unknown while condensed acid whey was heavily used in bakeries (59 percent).

Large sales of lactose were for use in infant foods (44 percent), dietetic foods (18 percent), and pharmaceuticals (16 percent).

[1]Excludes cottage cheese.

[2]Harold W. Lough, The Cheese Industry, USDA Ag. Econ. Rpt., No. 294, July 1975.

Table 18--Liquid whey disposition by size of cheese plants, 1973 1/

Disposition	Plant size 2/			
	Small	Medium	Large	All sizes
	Percent			
Sold for further processing	29.0	27.3	14.2	22.0
Condensed	.0	11.4	37.6	20.6
Dried	6.3	30.8	38.0	29.7
Modified	.0	4.7	3.6	3.4
Dumped in:				
Municipal sewer	10.8	5.5	1.9	4.9
Private sewage treatment plant	4.2	.8	.2	1.1
Lagoon	6.5	3.5	.0	2.5
Irrigation systems	2.9	6.9	2.8	4.5
Fed or used for fertilizer	40.3	9.1	1.7	11.3
Total	100.0	100.0	100.0	100.0

1/ Source: Harold W. Lough, The Cheese Industry, USDA Ag. Econ. Rpt. No. 294, July 1975.

2/ Plant size by annual cheese production (excluding cottage cheese)--small: less than 2 million pounds annually (63 percent of plants); medium: 2-9.9 million pounds annually (31 percent of plants); and large: 10 million pounds or more annually (6 percent of plants).

Table 19--Sales of edible whey products for specified uses, as percentage of reported sales by manufacturers and processors, 1975 1/

Utilization	Dry whey		Modified whey products		Condensed whey		Lactose
	Sweet-type	Acid-type	Sweet-type	Acid-type	Sweet-type	Acid-type	
	Percent						
Domestic sales							
Bakeries	28.8	67.5	---	93.6	4.3	59.0	---
Blends	9.2	16.8	---	---	---	---	---
Dairies and dairy use	32.9	7.6	26.3	---	5.5	---	8.4
Meat processors	0.2	0.9	---	---	---	---	---
Candy and chocolate manufacturers	1.8	---	8.5	---	0.6	---	---
Prepared dry mixes	5.4	2.1	15.3	---	3.2	---	---
Soups other than dry soups	0.5	---	---	---	---	---	---
Infant foods	---	---	45.9	---	---	---	43.6
Margarine	0.4	---	---	---	---	---	---
Dietetic foods	---	---	---	---	---	---	18.2
Fruit jellies and jams/preserves	---	---	---	---	---	---	0.2
Chemicals and pharmaceuticals	---	---	---	---	---	---	15.6
All other, including unknown	17.1	5.2	4.0	6.4	86.5	41.0	7.8
Subtotal	96.2	100.0	100.0	100.0	100.0	100.0	93.6
Sales for commercial and USDA export	3.8	---	---	---	---	---	6.1
Total 2/	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1/ Source: Whey Products, A Survey of Utilization and Production Trends, 1975, Whey Products Institute.
2/ May not add due to rounding.

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